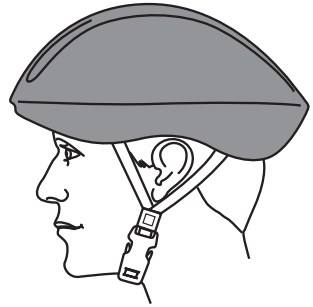
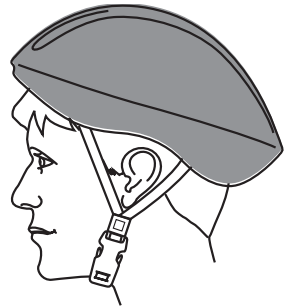
AVIGO
the road to fun
DON'T FORGET THE HELMET!

HELMETS SAVE LIVES!

ALWAYS WEAR A PROPERLY FITTED HELMET WHEN YOU RIDE YOUR BICYCLE. DO NOT RIDE AT NIGHT. AVOID RIDING IN WET CONDITIONS.



CORRECT FITTING
MAKE SURE YOUR HELMET COVERS YOUR FOREHEAD.



INCORRECT FITTING
FOREHEAD IS EXPOSED AND VULNERABLE TO SERIOUS INJURY.

PLEASE RETAIN YOUR SALES RECEIPT AS PROOF OF PURCHASE. FILL OUT THE INFORMATION BELOW AND KEEP THIS MANUAL IN A SAFE PLACE.

BRAND/DESCRIPTION: _____

MODEL #: _____

PRODUCTION DATE: _____

SERIAL #: _____

DATE OF PURCHASE: _____

STORE/PLACE OF PURCHASE: _____

ABOUT THIS MANUAL

This manual was written to help you get the most performance, comfort, enjoyment and safety when riding your new bicycle. It is important for you to understand your new bike. By reading this manual before you go out on your first ride, you'll know how to get the most from your new bicycle. It is also important that your first ride on your new bicycle is taken in a controlled environment, away from cars, obstacles, and other cyclists.

GENERAL WARNING

Bicycle riding can be a hazardous activity even under the best of circumstances. Proper maintenance of your bicycle is your responsibility as it helps reduce the risk of injury. This manual contains many "WARNINGS" and "CAUTIONS" concerning the consequences of failure to maintain or inspect your bicycle. Many of the warnings and cautions say, "you may lose control and fall." Because any fall can result in serious injury or even death, we do not repeat the warning of possible injury or death whenever the risk of falling is mentioned.

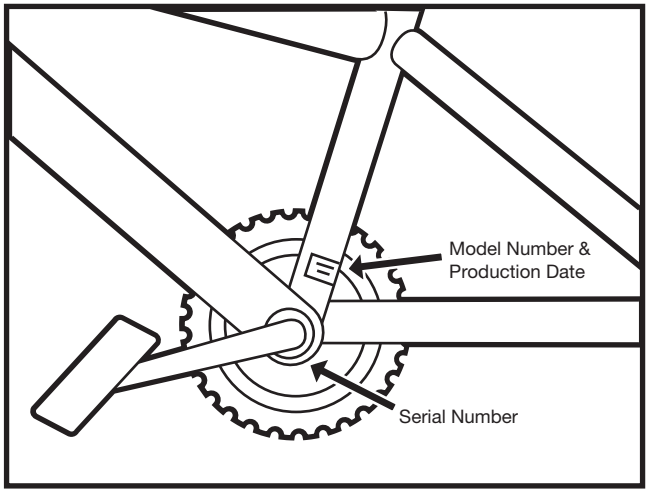
Dynacraft does not encourage stunting, trick riding, ramp riding, jumping, aggressive riding, riding on severe terrain, riding in severe climates, riding with heavy loads, riding double, commercial activities; such use is inherently dangerous, can cause serious injury to the rider, and if done it is with the rider's express and implied assumption of the risk of such use and Dynacraft shall not have any responsibility for any breakdown of the bicycle, its components or rider injuries that occur during such use.

A SPECIAL NOTE FOR PARENTS

It is a tragic fact that most bicycle accidents involve children. As a parent or guardian, you bear the responsibility for the activities and safety of your minor child. Among these responsibilities are to make sure that the bicycle which your child is riding is properly fitted to the child: that it is in good repair and safe operating condition; that the play of young children is supervised by an adult; that you and your child have learned, understand and obey not only the applicable local motor vehicle, bicycle and traffic laws, but also the common sense rules of safe and responsible bicycling. As a parent, you should read this manual before letting your child ride the bicycle. Please make sure that your child always wears an approved bicycle helmet when riding.

NOTE: The illustrations in this manual are used simply to provide examples; the components of your bicycle might differ. In addition, some of the parts shown might be optional and not part of the bicycle's standard equipment.

The following manual is only a guide to assist you and is not a complete or comprehensive manual of all aspects of maintaining and repairing your bicycle. The bicycle you have purchased is a complex object. We recommend that you consult a bicycle specialist if you have doubts or concerns as to your experience or ability to properly assemble, repair, or maintain your bicycle. You will save time and the convenience of having to go back to the store if you choose to write or call us concerning missing parts, service questions, operating advice, and/or assembly questions.



DYNACRAFT CUSTOMER SERVICE
1.800.551.0032
7AM to 4PM PACIFIC TIME

Dynacraft BSC, Inc.
89 South Kelly Road,
American Canyon, CA 94503
www.dynacraftbikes.com

DIRECTORY

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WARNING/IMPORTANT

Take notice of this symbol throughout this manual and pay particular attention to the instructions blocked off and preceded by this symbol.

DYNACRAFT BSC, INC.

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www.dynacraftbikes.com

TOOLS

PARTS LIST/ IDENTIFICATION

Mountain Bicycles
Dual Suspension Bicycles
BMX Bicycles
Road Bicycles

BEFORE YOU RIDE

Standover Height
Frame Weight Limit
Correct Frame Size
Rules of the Road
Off Road/Rider Safety
Riding Position
Saddle Height
Reach
Handlebar Height

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Steering
Cranks & Pedals
Chain
Bearings
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Helmets
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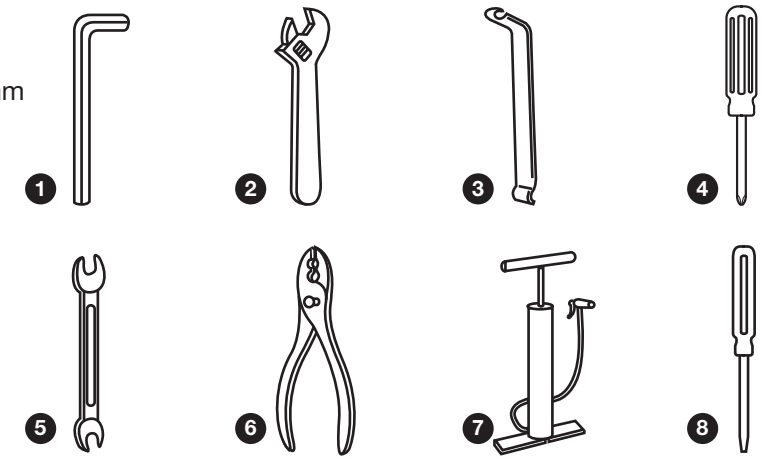
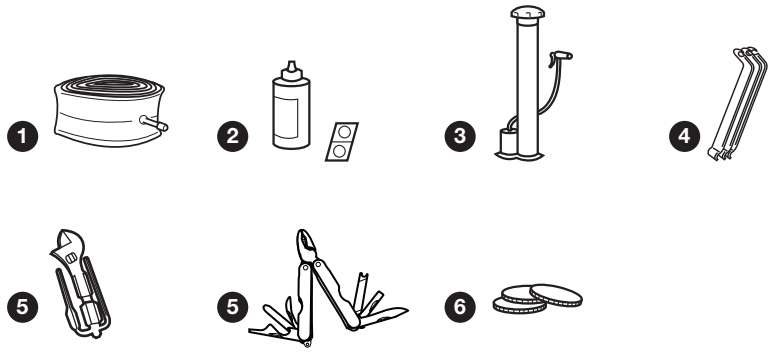
6. Standard slip joint pliers
7. Tire pump
8. Standard flat head screwdriver



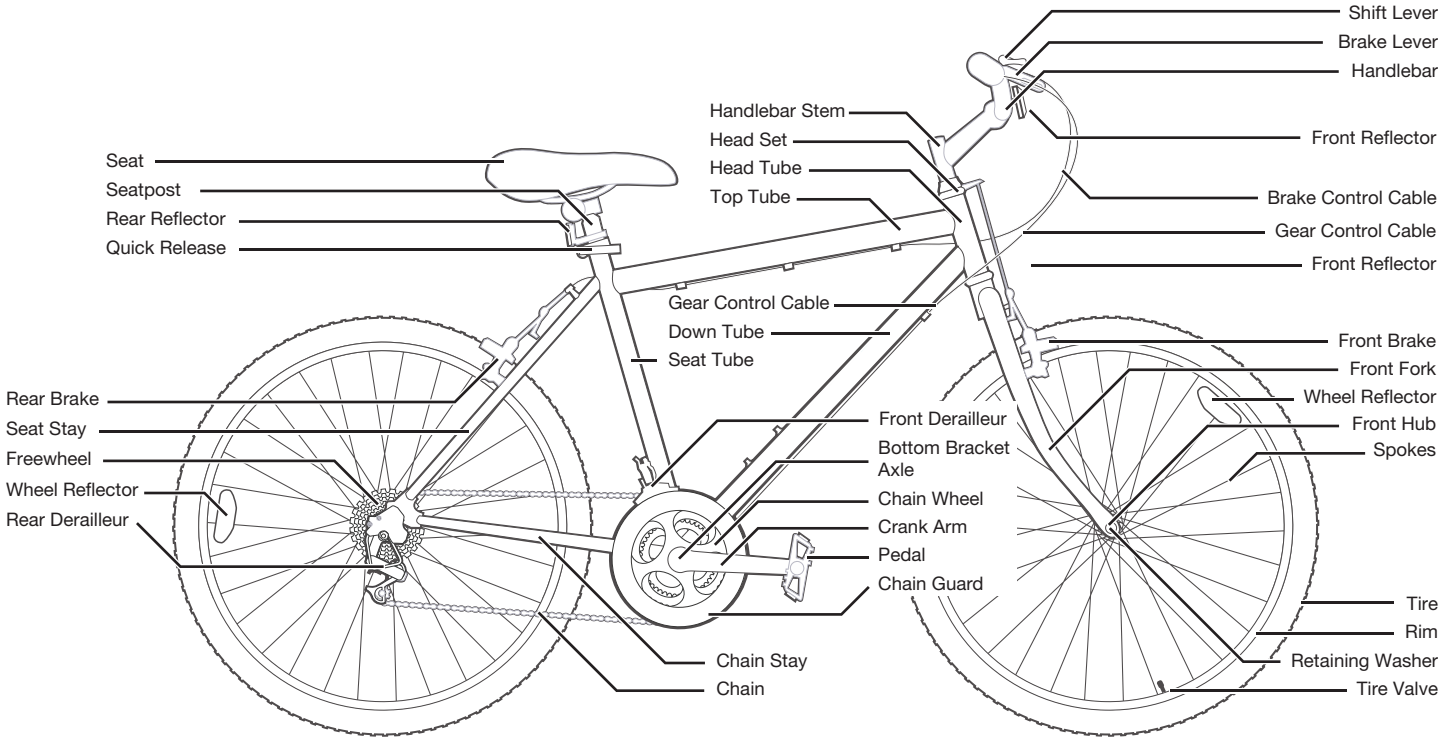
TRAVEL TOOLS

1. Spare Tube
2. Patch Kit
3. Pump
4. Tire Levers
5. Multi-tool
6. Change (phone call)



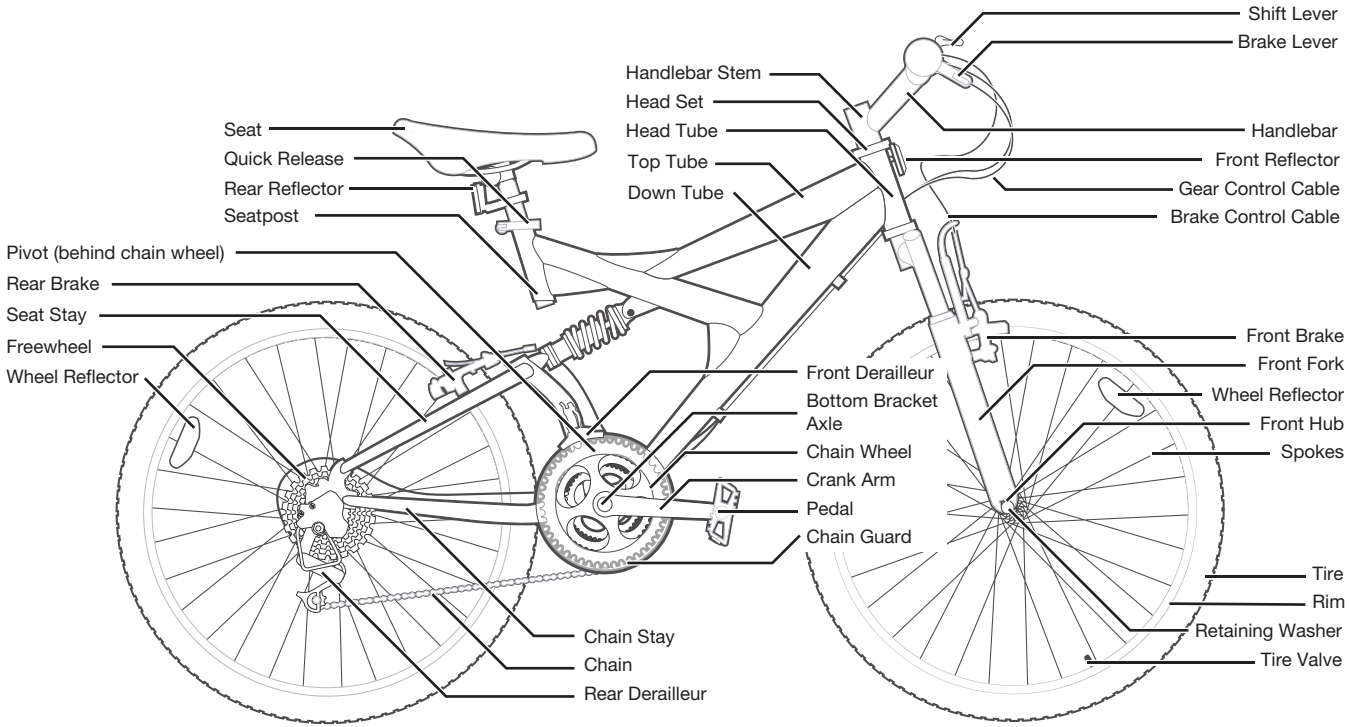
MOUNTAIN BICYCLES

Mountain bicycles are designed to give maximum comfort over a wide variety of road surfaces. The wider handlebars and convenient shift lever position make them very easy to control. Wider rims and tires give them a softer ride with more traction on rough surfaces. The frame and fork on mountain bicycles are much sturdier than those on racing style bicycles.



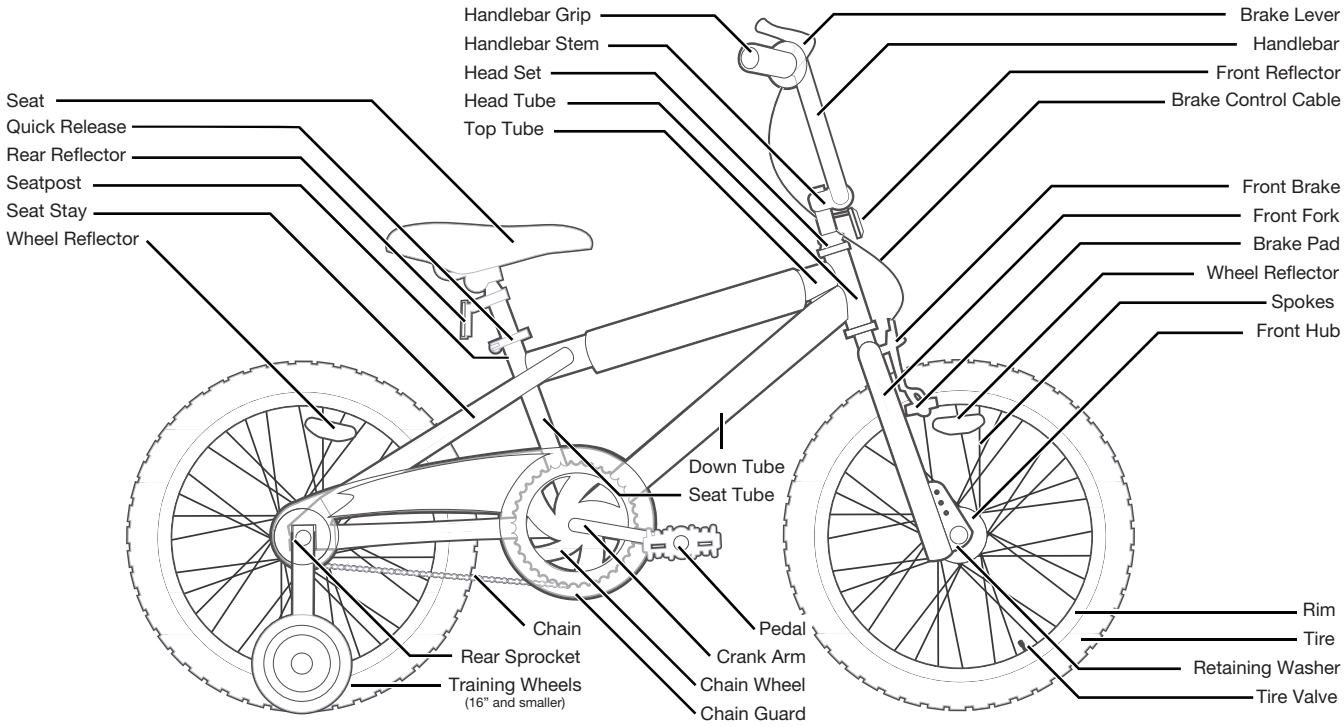
DUAL SUSPENSION MOUNTAIN BICYCLES

Dual Suspension Mountain bicycles are designed to give maximum comfort over a wide variety of road surfaces.



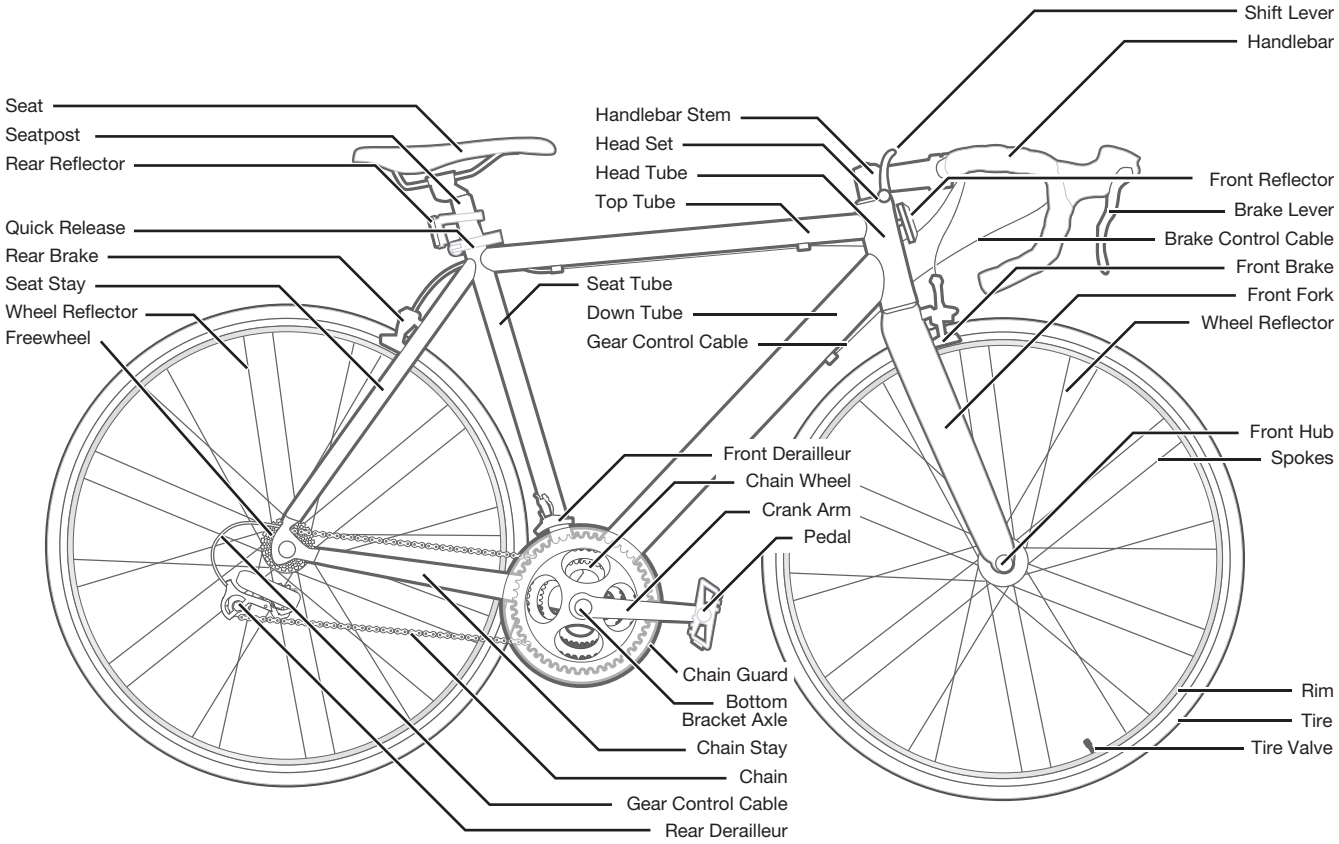
BMX BICYCLES

BMX bicycles are a popular general purpose type most suited for young riders. They are valued because of their sturdy and simple construction, and low maintenance.



ROAD BICYCLES

Road bicycles are designed for fast travel, hard training and competition on paved surfaces exclusively. It is the lightest, most aerodynamic and "fastest" type of bicycle.

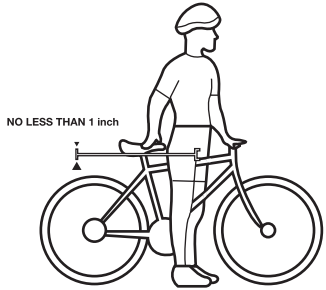


STANDOVER HEIGHT

1. Diamond Frame Bicycles
Standover height is the basic element of bike fit (see figure). It is the distance from the ground to the top tube of the bicycle's frame at that point where the top of the inseam of your pants is when straddling the bike. To check for correct standover height, straddle the bike while wearing the kind of shoes in which you'll be riding, and bounce vigorously on your heels. If the inseam touches the frame, the bike is too big for you. Don't even ride the bike around the block. A bike which you ride only on paved surfaces and never take off-road should give you a minimum standover height clearance of one inch (2.6 cm). A bike that you'll ride on unpaved surfaces should give you a minimum of three inches (7.5 cm) of standover height clearance.

2. Step-Through Frame Bicycles
Standover height does not apply to bicycles with step-through frames. Instead, the limiting dimension is determined by comparing a diamond frame bike that properly fits and then selecting the step-through bike of the same size.

! WARNING
If your bicycle does not fit properly, you may lose control and fall. If your new bike doesn't fit, ask your dealer to exchange it before you ride.



FRAME WEIGHT LIMIT

There is no American standard for testing the structural weight limits of bicycle frames and for each bike type our limits were determined through lab testing using international standards that seemed reasonable. Not all models were tested. Limits are based on the test results for exemplars of a 20 inch free style bicycle, a 26 inch diamond frame bicycle and a 26 inch dual suspension frame bicycle.

Structural Weight Limit: The maximum weight (rider and cargo) a bike frame can physically support.

Rider Weight: The weight of the rider in riding gear (e.g., jacket, helmet cam, hydration pack, helmet, etc.).

CARGO WEIGHT: The weight of any additional accessories (e.g., panniers, rear racks, saddle bags, handlebar bags, baskets, etc.) not accounted for in Rider Weight.

WEIGHT LIMIT: The maximum structural weight recommendations for our bicycles that are 20 inches or larger are:

- Free Style 20 inch bicycles: **176 lbs. (80 kg.).**
- Diamond frame adult bicycles up to 26 inches: **275 lbs. (125 kg.).**
- Dual suspension frame adult bicycles up to 26 inches: **275 lbs. (125 kg.).**

CORRECT FRAME SIZE

When selecting a new bicycle, the correct choice of frame size is a very important safety consideration.

⚠ CAUTION

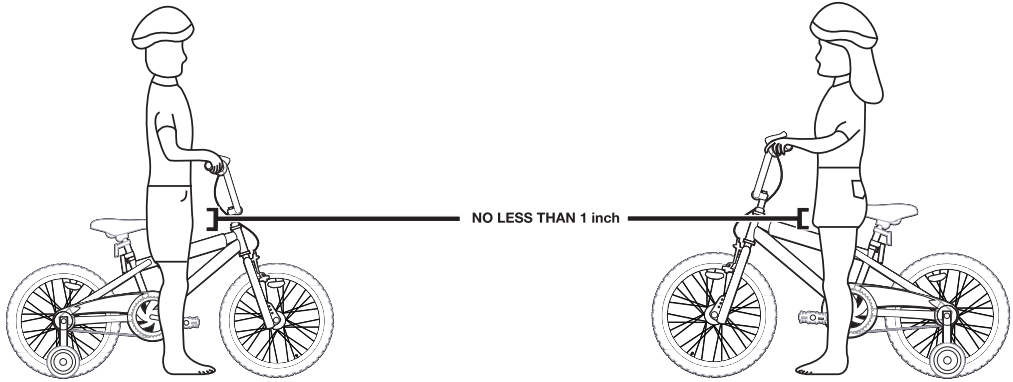
For safe and comfortable riding there should be a clearance of no less than 1 inch between the inseam area of the intended rider and the top tube of the bicycle frame, while the rider straddles the bicycle with both feet flat on the ground.

⚠ WARNING

If the bicycle is too large the rider cannot reach the pedals easily, or the ground when stopping which may result in loss of control and/or injury.

SAFE SIZING FOR JUVENILE AND SIDEWALK BICYCLES

It is assumed that the bicycle you have bought is sized correctly for the user. Some parents make the mistake of buying a bicycle too large for the intended rider, planning on the child “growing into” it. There should be a minimum of 1 inch clearance above the highest point of the top tube when the child is straddling the bicycle with both feet on the ground (see drawing below).



RULES OF THE ROAD AND SAFETY TIPS

NOTE: Like any sport, bicycling involves risk of injury and damage. By choosing to ride a bicycle, you assume the responsibility for that risk; not the people who sold you the bike; nor the people who made it; nor the people who distribute it; nor the people who manage or maintain the roads and trails you ride on. YOU. So you need to know - and to practice - the rules of safe and responsible riding.

1. IN THE INTEREST OF SAFER CYCLING, MAKE SURE YOU READ AND UNDERSTAND YOUR OWNER'S MANUAL. NOTE AND PERFORM PRE RIDE SAFETY CHECKS.

2. NOTICE: Some state and local laws may require that your bicycle be equipped with a warning device such as a horn or bell and a light if the bicycle is to be ridden after dark.

3. ALWAYS WEAR SHOES when riding a bicycle and **AVOID LOOSE FITTING CLOTHES.**

4. CHECK YOUR BRAKES FREQUENTLY. THE ABILITY TO STOP YOUR BICYCLE IS CRITICAL. Roads are slippery when wet so avoid sharp turns and allow more distance stopping. Caliper brakes may become less efficient when wet. Leaves, loose gravel, and other debris can also effect stopping.

5. ALWAYS RIDE IN THE SAME DIRECTION AS TRAFFIC. Never ride against traffic.

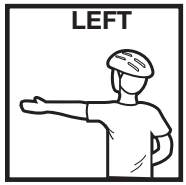
6. STOP AND LOOK BEFORE YOU LEAVE AN ALLEY, DRIVEWAY, OR PARKING LOT. Stop, look to the left, to the right, and to the left again for traffic. Ride only when it is clear.

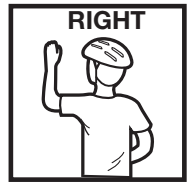
7. KEEP TO THE RIGHT. Follow the traffic flow in a straight line and stay close to the curb. Watch for cars moving in and out of traffic.

8. OBEY ALL TRAFFIC LAWS REGULATIONS. Most traffic regulations apply to bike riders as well as automobile operators.

9. ALWAYS RIDE ALONE. NEVER CARRY OTHER RIDERS. This is dangerous and makes the bike harder to control. The bicycles distributed by Dynacraft BSC, Inc. are intended for one rider only.

10. ALWAYS BE ALERT. Be ALERT - pedestrians have the right of way. Be ALERT - when riding near parked cars - ride far enough away from the cars so that you won't get hit if someone opens the car door.





RULES OF THE ROAD AND SAFETY TIPS (continued)

11. USE CAUTION AT ALL INTERSECTIONS AND STOP SIGNS. STOP AND LOOK BOTH WAYS BEFORE PROCEEDING.

12. USE HAND SIGNALS. Communicate by using hand signals to tell other drivers what you are going to do. Signal 100 feet before turning unless your hand is needed to control the bike (see page 8 for hand signal instructions).

13. HAVE PROPER LIGHTS AND REFLECTORS. IF YOU RIDE AT NIGHT, be sure to have a strong headlight, a tail light, and a full set of reflectors. CHECK THAT REFLECTORS ARE CLEAN, STRAIGHT, UNBROKEN, AND SECURELY MOUNTED.

14. NEVER CARRY PACKAGES OR OBJECTS WHICH OBSTRUCT VISION.

15. NEVER HITCH RIDES, never hold onto a moving vehicle while riding.

16. THE KICKSTAND IS DESIGNED TO SUPPORT THE BICYCLE ONLY, not the bicycle and the rider.

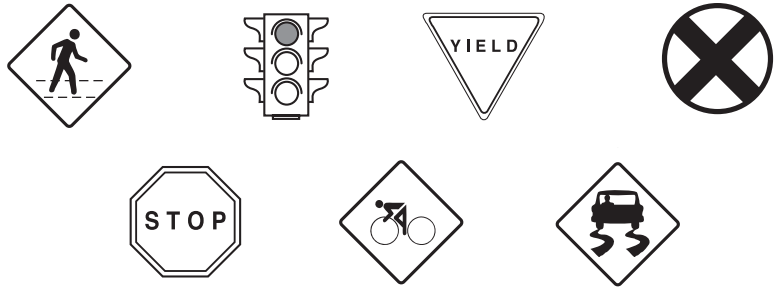
17. AVOID THE FOLLOWING HAZARDS: Drain grates, potholes, soft road edges, gravel, sand, wet leaves, and/or any obstruction in the road. Failure to do so could cause wheel(s) to buckle and result in personal injury to the rider.

18. WET WEATHER RIDING - Riding your bicycle in wet conditions is not recommended. In wet conditions traction and braking power is reduced. Riding in such conditions could result in personal injury.

19. PROPER HELMET USE. A helmet that meets the CPSC (Consumer Product Safety Commission) standard should always be worn when riding a bicycle. The helmet should fit properly and worn on the crown of the head, not tipped back.

20. USE BIKE LANES when available. Also note that in certain states, cars may use bike lanes when turning.

21. Respect “Bicycles Are Prohibited” signs.



OFF ROAD SAFETY

We recommend that children not ride on rough terrain unless they are accompanied by an adult. Off road riding on approved trails with appropriate protective equipment can be done with mountain bikes and BMX bikes if you have the skill and experience necessary to maintain control. Whether you call it *Aggro, Hucking, Freeride, North Shore, Downhill, Jumping, Stunt Riding, Racing* or something else: it is **NOT** off road riding, it is **NOT** recommended and if you engage in this sort of extreme, aggressive riding *you **will** get hurt*, and you voluntarily assume a greatly increased risk of injury or death. Dynacraft bicycles are not designed for these types of extreme riding.

! WARNING

Although many catalogs, advertisements and articles about bicycling depict riders engaged in extreme riding, this activity is extremely dangerous, increases your risk of injury or death, and increases the severity of any injury. Remember that the action depicted is being performed by professionals with many years of training and experience. Even with state-of-the-art protective safety gear, you could be seriously injured or killed when jumping, stunt riding, riding downhill at speed or in competition.

! WARNING

Bicycles and bicycle parts have limitations with regard to strength and integrity, and this type of riding can exceed those limitations.

The variable conditions and hazards of off-road riding require close attention and specific skills. Start slowly on easier terrain and build up your skills. If your bike has suspension, the increased speed you may develop also increases your risk of losing control and falling. Get to know how to handle your bike safely before trying increased speed or more difficult terrain.

1. Wear safety gear appropriate to the kind of riding you plan to do.

2. Don't Ride alone in remote areas. Even when riding with others, make sure that someone knows where you're going and when you expect to be back.

3. Always take along some kind of identification, so that people know who you are in case of an accident; and take along some cash for food, a cool drink or an emergency phone call.

(continued)

4. Yield right of way to pedestrians and animals. Ride in a way that does not frighten or endanger them, and give them enough room so that their unexpected moves don't endanger you.

5. Be prepared. If something goes wrong while riding off-road, help may not be close.

6. Do NOT attempt to jump, do stunt riding or race with your bike.

OFF ROAD RESPECT

Obey the local laws regulating where and how you can ride off-road, and respect private property. You may be sharing the trail with others — hikers, equestrians, other cyclists. Respect their rights. Stay on the designated trail. Don't contribute to erosion by riding in mud or with unnecessary sliding. Don't disturb the ecosystem by cutting your own trail or shortcut through vegetation or streams. It is your responsibility to minimize your impact on the environment. Leave things as you found them; and always take out everything you brought in.

WET WEATHER RIDING

Under wet conditions, the stopping power of your brakes (as well as the brakes of other vehicles sharing the road) is dramatically reduced and your tires don't grip nearly as well. This makes it harder to control speed and easier to lose control. Dynacraft does not recommend that you ride under these conditions.

! WARNING

Wet weather impairs traction, braking and visibility, both for the bicyclist and for other vehicles sharing the road. The risk of an accident is dramatically increased in wet conditions.

NIGHT RIDING

Riding a bicycle at night is much more dangerous than riding during the day. A bicyclist is very difficult for motorists and pedestrians to see. Therefore, children should never ride at dawn, at dusk or at night. Adults who choose to accept the greatly increased risk of riding at dawn, at dusk or at night need to take extra care both riding and choosing specialized equipment which helps reduce that risk. Consult your dealer about night riding safety equipment.

! WARNING

Reflectors are not a substitute for required lights. Riding at dawn, at dusk, at night or at other times of poor visibility without an adequate bicycle lighting system and without reflectors is dangerous and may result in serious injury or death.

! WARNING

Do not remove the front or rear reflectors or reflector brackets from your bicycle. They are an integral part of the bicycle's safety system. Removing the reflectors reduces your visibility to others using the roadway. Being struck by other vehicles may result in serious injury or death.

PEDALING TECHNIQUE

- Position the ball of your foot on the corner of the pedal.
- When pedaling, ensure your knees are parallel to the bike frame.
- To absorb shock, keep your elbows slightly bent.
- Learn to operate the gears properly (refer to pages 21-23).

HILL TECHNIQUE

- Gear down before a climb and continue gearing down as required to maintain pedaling speed.
- If you reach the lowest gear and are struggling, stand up on your pedals. You will then obtain more power from each pedal revolution.
- On the descent, use the high gears to avoid rapid pedaling.
- Do not exceed a comfortable speed, maintain control and take additional care.

CORNERING TECHNIQUE

Brake slightly before cornering and prepare to lean your body into the corner. Maintain the inside pedal at the 12 o'clock position and slightly point the inside knee in the direction you are turning. Keep the other leg straight, don't pedal through fast or tight corners.

RULES FOR CHILDREN

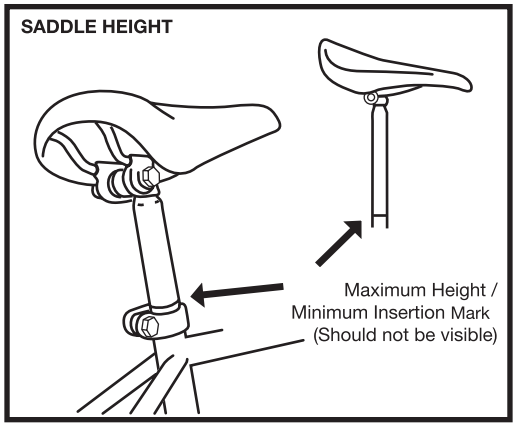
To avoid an accident, teach children good riding skills with an emphasis on safety from an early age.

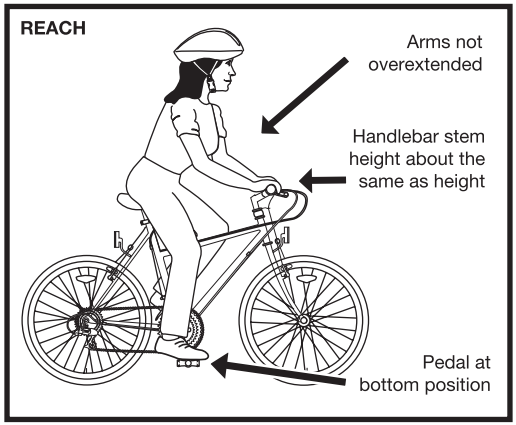
1. Always wear a properly fitted helmet.
2. Do not play in driveways or the road.
3. Do not ride on busy streets.
4. Do not ride at night.
5. Obey all traffic laws, especially stop signs and red lights.
6. Be aware of other road vehicles behind and nearby.
7. Before entering a street: Stop, look left, right, and left again for traffic.
8. If riding downhill, be extra careful. Slow down using the brakes and maintain control of steering.
9. Never take your hands off the handlebars, or your feet off the pedals when riding downhill.

! CAUTION

The Consumer Product Safety Commission advises that the riding of small wheel diameter bicycles at excessive speeds can lead to instability and is not recommended.

Children should be made aware of all possible riding hazards and correct riding behavior before they take to the streets.
DO NOT LEAVE IT UP TO TRIAL AND ERROR.





RIDING POSITION

Saddle Height

In order to obtain the most comfortable riding position and offer the best possible pedaling efficiency, the seat height should be set correctly in relation to the rider's leg length. The correct saddle height should not allow leg strain from over-extension, and the hips should not rock from side to side when pedaling. While sitting on the bicycle with one pedal at it's lowest point, place the ball of your foot on that pedal. The correct saddle height will allow the knees to be slightly bent in this position. If the rider then places the heel of that foot on the pedal, the leg should be almost straight.

Reach

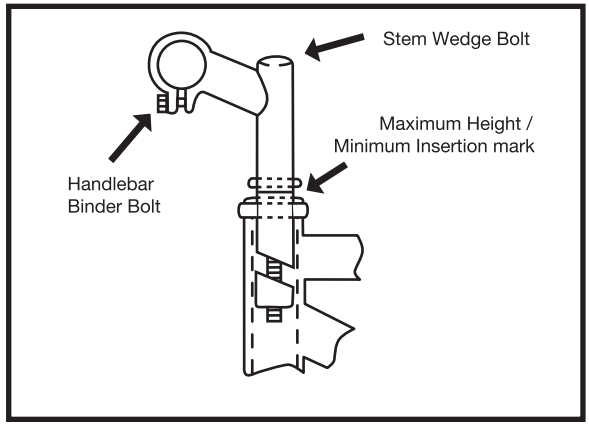
To obtain maximum comfort, the rider should not overextend his or her reach when riding. To adjust the distance, the position of the seat can be altered in relation to the seat pillar.

! CAUTION

Under no circumstances should the seatpost project from the frame beyond its "Minimum Insertion" or "Maximum Extension" mark. If your seatpost projects from the frame beyond these markings, the seatpost or frame may break, which could cause you to lose control and fall. After any saddle adjustment, be sure to tighten the saddle adjusting mechanism properly before riding. A loose saddle clamp or seatpost binder can cause damage to the bicycle or can cause you to loose control and fall. Periodically check to make sure that the saddle adjusting mechanism is properly tightened.

HANDLEBAR HEIGHT

Maximum comfort is usually obtained when the handlebar height is equal to the height of the seat. You may wish to try different heights to find the most comfortable position.



! WARNING

Over tightening the stem bolt or headset assembly may cause damage to the bicycle and/or injury to the rider.

! WARNING

The stem's "Minimum Insertion" mark must not be visible above the top of the headset. If the stem is extended beyond this mark, the stem may break or damage the fork's steerer tube, which could cause you to lose control and fall.

! CAUTION

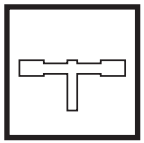
Failure to properly tighten the stem wedge bolt, the handlebar binder bolt, or the bar end extension clamping bolts may compromise steering action, which could cause you to lose control and fall. Place the front wheel of the bicycle between your legs and attempt to twist the handlebar/stem assembly. If you can twist the stem in relation to the front wheel, turn the bar end extensions in relation to the handlebar, you must tighten the appropriate bolts accordingly.

SAFETY CHECKLIST

Before every ride, it is important to carry out the following safety checks: (For information and instructions on performing specific equipment checks, locate the relevant section in the manual using the index on page vii).

1. Brakes

- Ensure front and rear brakes work properly.
- Ensure brake shoe pads are not over worn and are correctly positioned in relation to the rims.
- Ensure brake control cables are lubricated, correctly adjusted, and display no obvious wear.
- Ensure brake control levers are lubricated and tightly secured to the handlebar.

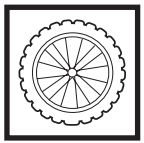


2. Steering

- Ensure handlebar and stem are correctly adjusted and tightened, and allow proper steering.
- Ensure that the handlebars are set correctly in relation to the forks and the direction of travel.
- Check that the head set locking mechanism is properly adjusted and tightened.
- If the bicycle is fitted with handlebar end extensions, ensure they are properly positioned and tightened.

3. Cranks and Pedals

- Ensure pedals are securely tightened to the cranks.
- Ensure cranks are securely tightened to the axle and are not bent.



4. Wheels and Tires

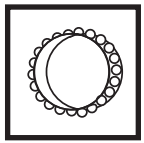
- Ensure tires are inflated to within the maximum recommended limit as displayed on the tire sidewall.
- Ensure tires have tread and have no bulges or excessive wear.
- Ensure rims run true and have no obvious wobbles or kinks.
- Ensure all wheel spokes are tight and not broken.
- Check that axle nuts are tight.

5. Chain

- Ensure chain is oiled, clean and runs smoothly.
- Extra care is required in wet or dusty conditions.
- On bicycles equipped with coaster brakes, check for proper chain tension.

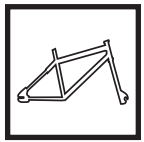
6. Derailleurs

- Check that front and rear mechanisms are adjusted and function properly.
- Ensure control levers are securely attached.
- Ensure derailleurs, shift levers and control cables are properly lubricated.



7. Bearings

- Ensure all bearings are lubricated, run freely and display no excess movement, grinding or rattling.
- Check headset, wheel bearings, pedal bearings and bottom bracket bearings.



8. Frame and Fork

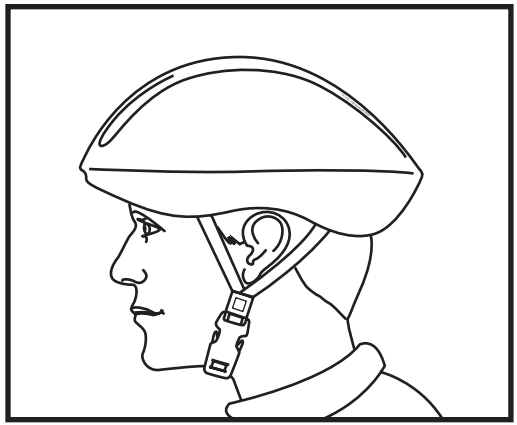
- Check that the frame and fork are not bent or broken.
- If either are bent or broken, they should be replaced.

9. Accessories

- Ensure that all reflectors are properly fitted and not obscured.
- Ensure all other fittings on the bike are properly and securely fastened, and functioning.
- Ensure the rider is wearing a helmet.

HELMETS

Local laws of most places require a helmet, and common sense requires them in other places where it is not the law. It is strongly advised that a properly fitting, CSPC approved, bicycle safety helmet be worn at all times when riding your bicycle. In addition, if you are carrying a passenger in a child safety seat, they must also be wearing a properly fitted helmet.



The correct helmet should:
- be comfortable
- be lightweight
- have good ventilation
- fit correctly

! WARNING

Always wear a properly fitted helmet when riding a bicycle. Falling off your bicycle without a helmet can cause serious injury or death. Many states require specific safety devices. It is your responsibility to familiarize yourself with the laws of the state where you ride and comply with all applicable laws, including properly equipping yourself and your bike as the law requires. Reflectors are important safety devices which are designed as an integral part of your bicycle. Federal regulations require most types of bicycles to be equipped with front, rear, wheel, and pedal reflectors. These reflectors are designed to pick up and reflect street lights and car lights in a way that helps you to be seen and recognized as a moving bicyclist. Check reflectors and their mounting brackets regularly to make sure they are clean, straight, unbroken, and securely mounted. Replace damaged reflectors and straighten or tighten any that are bent or loose.

REFLECTORS

Your bicycle is supplied with one front (white), one rear (red), two wheel (white), and two pedal (orange) reflectors. These are an important safety and legal requirement, and should remain securely fitted and in good, clean conditions at all times. Periodically, inspect all reflectors, brackets, and mounting hardware for signs of wear or damage. Replace immediately if damage is found. Some bicycles will require you to install your reflectors onto your bicycle.

Please refer to the following section for instructions on all types of bicycle reflectors.

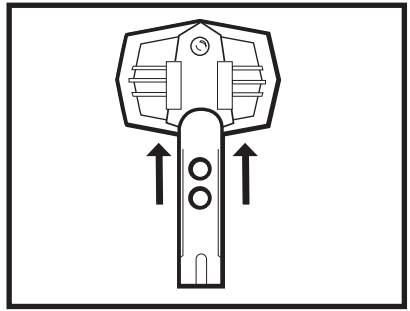
NOTE: CPSC Regulations do not require reflectors on 10”, 12” and 16” Sidewalk Bicycles - We recommend, however, that you attach reflectors for the protection of the rider. These types of bicycles should be operated during daylight hours only, on a smooth, paved surface such as a sidewalk, under the direct supervision of an adult. These bicycles should never be ridden in the street, on an incline, or on rough terrain. Under no circumstances should these types of bicycles be operated at speeds that would make it difficult to control, nor should it be raced or used for stunting, jumping, motocross, or off-road use or other activities not normally associated with a Sidewalk Bicycle.

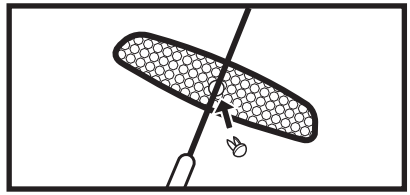
FRONT MOUNT REFLECTOR BRACKET ASSEMBLY

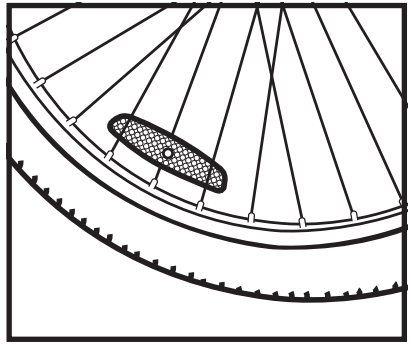
Slide reflector over bracket as shown in diagram and ensure that the tab clicks into the top hole of the bracket. Insert one washer onto the hex bolt and insert hex bolt through the reflector bracket and then through the fork. Next, insert a second washer onto the bolt and thread a hex nut onto the bolt behind the fork. Tighten bolts until snug, making sure the reflector is in an upright position.

WHEEL REFLECTORS

The wheel reflectors should come already attached to the spokes of both the front and rear wheels. To attach reflector to the wheel, fit the groove in the reflector to a spoke that matches the groove. The reflector should be mounted across from the valve stem and as close to the rim as possible. The reflector should fit firmly between a single spoke on one side and two spokes on the other. Use the supplied clip (with two locking prongs), fit the clip over the spoke and into the hole and press until the locking prongs “click” into place. Be sure to fit reflectors to both wheels.







SEAT AND HANDLEBAR MOUNTING REFLECTORS

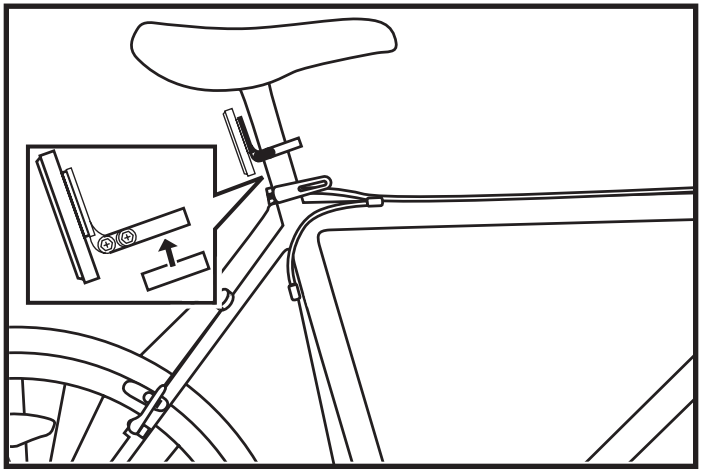
Slide reflector over bracket (shown on page 19) and ensure that the tab clicks into the top hole of the bracket. Next, remove the clamp screw and open the clamping reflector bracket. Place clamping reflector bracket around the handlebar or seatpost. If the clamp is too loose, insert the shim inside of the clamp. Tighten the clamp screw to hold reflector assembly in place. Finally, adjust the reflector such that it is upright and facing away from the bike.

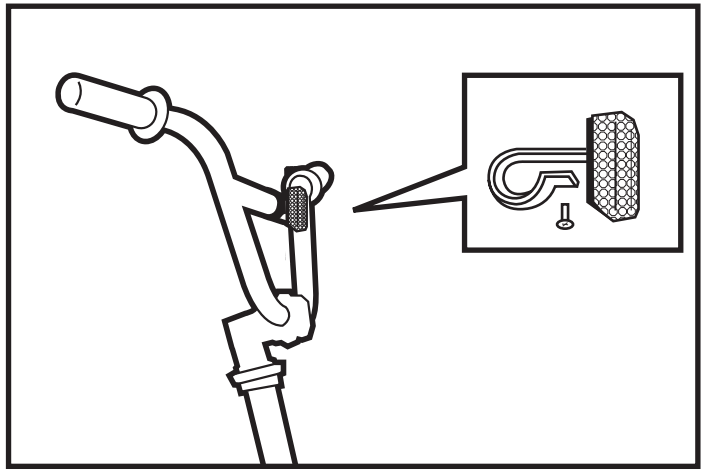
SEATPOST MOUNT REFLECTOR BRACKET ASSEMBLY

Slide reflector over bracket as shown in diagram below and ensure that the tab clicks into the top hole of the bracket. Insert one washer onto the hex bolt and insert hex bolt through the reflector bracket and around the seatpost. Tighten bolts until snug, making sure the reflector is in an upright position. See diagram below.

PEDAL REFLECTORS

Pedal reflectors are required by federal law. Maintain them and replace any that are missing.





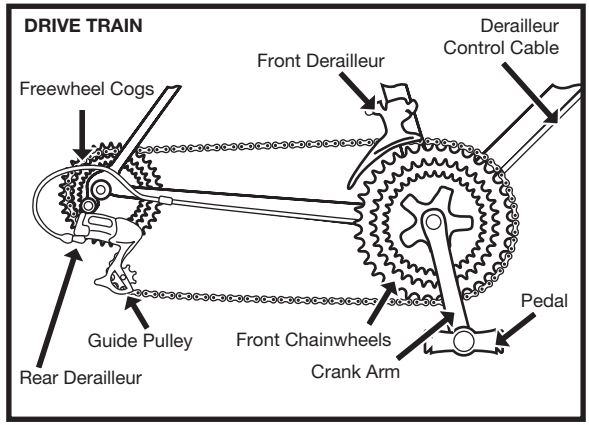
GEARS - HOW TO OPERATE

Derailleur Gears

Most multi-speed bicycles today are equipped with what are known as derailleur gears. They operate using a system of levers and mechanisms to move the drive chain between different sized driving gears or cogs. The purpose of gears is to let you maintain a constant, steady pedaling pace under varying conditions. This means your riding will be less tiring without unnecessary straining up hills or fast pedaling down hill. Bicycles come with a variety of gear configurations from 5 to 27 speeds. A 5-6 speed bicycle will have a single front chain-wheel, a rear derailleur, and 5 or 6 cogs on the rear hub. Bicycles with more gears will also have a front derailleur, a front chainwheel with 2-3 cogs, and up to 7 cogs on the rear hub.

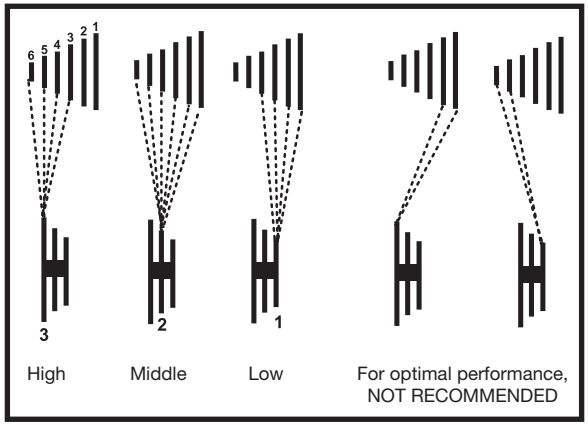
Operating Principles

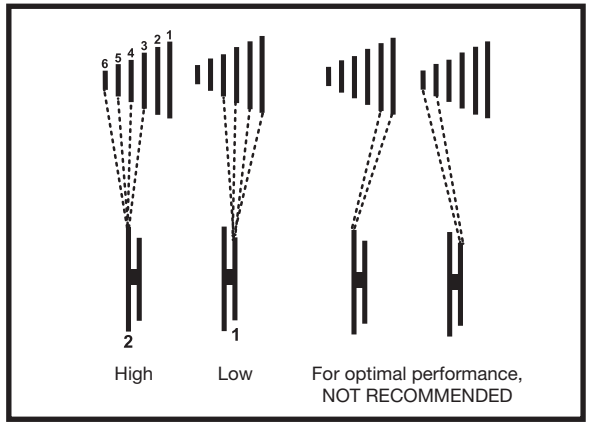
No matter how many gears, the operating principles are the same. The front derailleur is operated by the left shift lever and the rear derailleur by the right. To operate, you must be pedaling forward. You can not shift derailleur gears when you are stopped or when pedaling backwards. Before shifting, ease up on your pedaling pressure. For a smooth gear change when approaching a hill, shift to a lower gear BEFORE your pedaling speed slow down too much. When coming to a stop, shift to a lower gear first so it will be easier when you start riding again. If, after selecting a new gear position, you hear a slight rubbing noise from the front or rear gears, gently adjust the appropriate shifter using the barrel adjusters until the noise goes away. For optimal performance and extended chain life, it is recommended that you avoid using the extreme combinations of gear positions (diagram page 22) for extended periods.



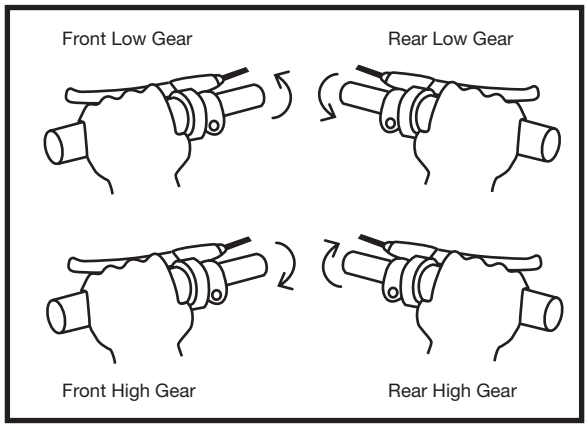
! CAUTION

Children under age 9 should only ride single speed bicycles as they do not have capability to use shifters.





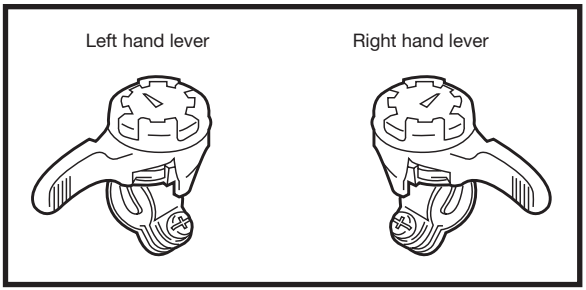
Recommended Chainwheel/Rear Sprocket Gear Combinations



Hand Grip Shifters

Many bicycles are now being equipped with a shifting mechanism that is built into the handlebar grips and does not make use of separate levers. The shifting is built into the inside part of the grip that allows the thumb and index finger around. To select a lower gear, twist the grip towards you to engage a larger rear cog. You can shift one gear at a time by moving the shifter one click, or through multiple gears by continuing twisting. By twisting the left shifter forward or away from you, a smaller chainwheel can be selected. To select a higher gear, twist the right shifter forward or away from you to engage a smaller rear cog. To engage a larger front chainwheel, twist the left shifter towards you.

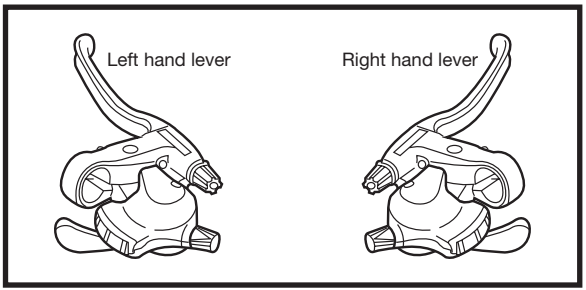
NOTE: Some bicycles may be equipped with a rear derailleur mechanism that works in reverse to the direction above.



Thumb Shifters (Top Mounted)

Many mountain style bicycles are equipped with shifters mounted on the top of the handlebars and operated by the thumbs. To select a lower, easier gear, shift to a bigger rear cog and a small chainwheel. Pull the left shifter back to operate the rear derailleur. To select a higher, harder gear, shift to a smaller rear cog and a larger chainwheel. Push the left shifter forward for the front, and pull the right lever back for the rear.

Top Gear	**Bottom Gear**
(Harder)	(Easier)
Small rear sprocket	Large rear sprocket
Large chainwheel	Small chainwheel
Left hand lever forward	Left hand lever back
Right hand lever back	Right hand lever forward



Below the Bar Shifters

Many mountain style bicycles now use a shift lever arrangement mounted on the underside of the handlebars, which use two levers operated by the thumb and index finger. To select a lower gear, push the larger (lower) right shifter with your thumb to engage a larger rear cog. One firm push shifts the chain one cog, continuing to push will move the chain over multiple cogs. Pulling the smaller (upper) right lever with your index finger to engage a smaller rear cog. Pushing the larger (lower) left lever with your thumb will move the chain from a smaller to a larger chainwheel.

BICYCLE CARE

Basic Maintenance

The following procedures will help you maintain your bicycle for years of enjoyable riding.

• Before you ride, check the alignment of the front wheel. If it is in alignment, you should see it if when lifting the front of the bike and spinning the wheel, the gaps between the front brake pads are consistently the same. If you do not see this, your wheels need truing.

CAUTION: Wheels must be true for rim brakes to work effectively. Wheel truing is a skill which requires special tools and experience. Do not attempt to true a wheel unless you have the knowledge, experience and tools needed to do the job correctly. See a qualified bike technician to properly true wheels.

• For painted frames, dust the surface and remove any loose dirt with a dry cloth. To clean, wipe with a damp cloth soaked in a mild detergent mixture. Dry with a cloth and polish with car or furniture wax. Use soap and water to clean plastic parts and rubber tires. Chrome plated bikes should be wiped over with a rust preventative fluid.

• Store your bicycle under shelter. Avoid leaving it in the rain or exposed to corrosive materials. Riding on the beach or in coastal areas exposes your bicycle to salt which is very corrosive. Wash your bicycle frequently and wipe or spray all unpainted parts with an anti-rust treatment. Make sure wheel rims are dry so braking performance is not affected. After rain, dry your bicycle and apply anti-rust treatment.

• If the hub and bottom bracket bearings of your bicycle have been submerged in water, they should be taken out and regreased. This will prevent accelerated bearing deterioration.

• If paint has become scratched or chipped to the metal, use touch up paint to prevent rust. Clear nail polish can also be used as a preventative measure. Your local hobby shop will carry paints in small containers and a variety of colors that you can use to touch up paint.

• Regularly clean and lubricate all moving parts, tighten components and make adjustments as required (refer to pages 76-78 of this manual for further details).

The selected use of alloy component and surface treatments helps prevent rust and corrosion from affecting some areas of your bicycle.

STORAGE

Keep your bicycle in a dry location away from the weather and the sun. Ultraviolet rays may cause paint to fade or rubber and plastic parts to crack. Before storing your bicycle for a long period of time, clean and lubricate all components and wax the frame. Deflate the tires to half pressure and hang the bicycle off the ground. Don't store near electric motors as ozone emissions may effect the rubber and paint. Don't cover with plastic as "sweating" will result which may cause rusting.

Please notice that your bicycle warranty does not cover paint damage, rust, corrosion, dry rot, or theft.

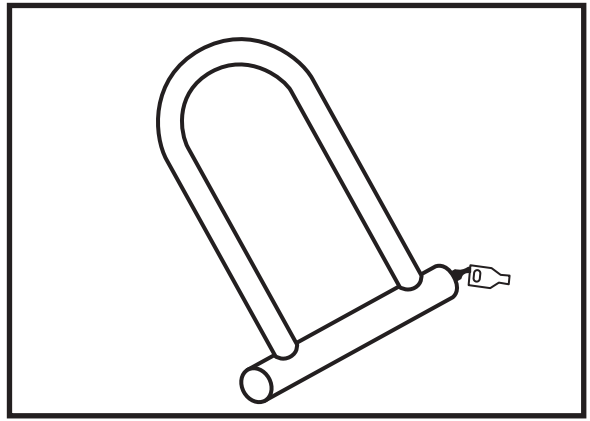
SECURITY

It is advisable that the following steps be taken to prepare for and help prevent possible theft.

1. Maintain a record of the bicycle's serial number, generally located on the frame underneath the bottom bracket.

2. Register the bicycle with the local police.

3. Invest in a high quality bicycle lock that will resist hack saws and bolt cutters. Always lock your bicycle to an immovable object if it is left unattended.



DERAILLEUR GEARED BICYCLES

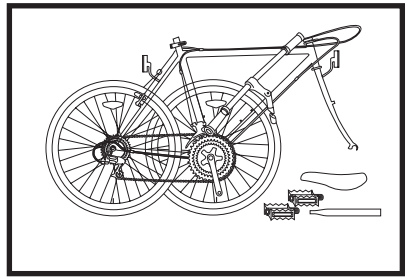
Includes 20”, 24”, and 26” Wheel Mountain Bikes. Assembly is the same for men’s and women’s bikes.

FOREWORD: Assembling a bicycle is an important responsibility. Proper assembly not only gives the rider more enjoyment of the bicycle, it also offers an important measure of safety.

Getting Started

Open the carton from the top and remove the bicycle. Remove the straps and protective wrapping from the bicycle. Inspect the bicycle and all accessories and parts for possible shortages. It is recommended that the threads and all moving parts in the parts package be lubricated prior to installation. Do not discard packing materials until assembly is complete to ensure that no required parts are accidentally discarded. Assemble your bicycle following the steps that pertain to your model.

NOTE: Your bicycle may be equipped with different style components than the ones illustrated.



Front Wheel

1. Make sure the brakes are loose enough to allow the wheel to pass through the brake pads easily.

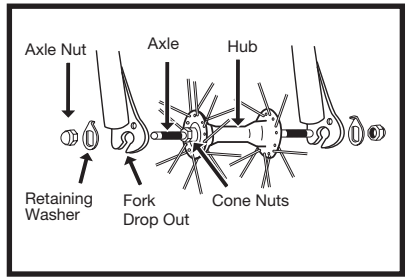
2. Place wheel into fork drop outs.

3. Install retaining washers with raised lip pointed towards the fork, and insert into the small hole of the fork blade.

4. Install axle nut and securely tighten. Make sure the wheel is centered between the fork blades.

5. Spin the wheel to make sure that it is centered and clears the brake shoes. Tighten the brakes if necessary.

6. If the wheel is out of alignment you will need to true the wheel; when spinning the wheel and notice the gaps between the brake pads are not consistently the same, the wheel needs truing. See a qualified bike technician to true wheels.



! WARNING

It is very important to check the front wheel connection to the bicycle. Failure to properly tighten may cause the front wheel to dislodge, resulting in a lose of control, injury or even death.

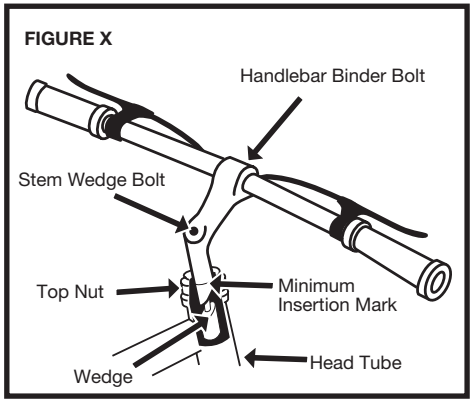
! CAUTION

Wheels must be true for rim brakes to work effectively. Wheel truing is a skill which requires special tools and experience. Do not attempt to true a wheel unless you have the knowledge, experience and tools needed to do the job correctly.

HANDLEBARS

Most of our bikes are equipped with a “quill” stem (figure X). To assemble the handlebars remove the protective cap from the wedge end of the stem bolt and loosen the bolt using the 6 mm Allen key. Some models may use a 13 mm hexagonal bolt instead of an Allen key bolt. Place the handlebar stem into the top of the steer tube which is the top end of the fork that has been inserted into the head tube at the factory, ensuring that all cables are free of tangles. Tighten the stem bolt observing the Minimum Insertion Mark and checking that the forks and the handlebars are facing forward. After the stem bolt is tested tight (see Important Note below), adjust handlebars to correct position. Loosen the 6 mm Handlebar Binder Bolt (See Figure X) and rotate the handlebar forward so the brake levers are at a 45 degree angle below the handlebar. Retighten the Binder Bolt to ensure the handlebar does not rotate in the stem. After the handlebar stem has been fitted into the steer tube that is the top end of the fork and the two pieces made firm within the head tube the action of a stem bolt upon the wedge nut binds with the inside of the steer tube to form a solid steering column.

FIGURE X

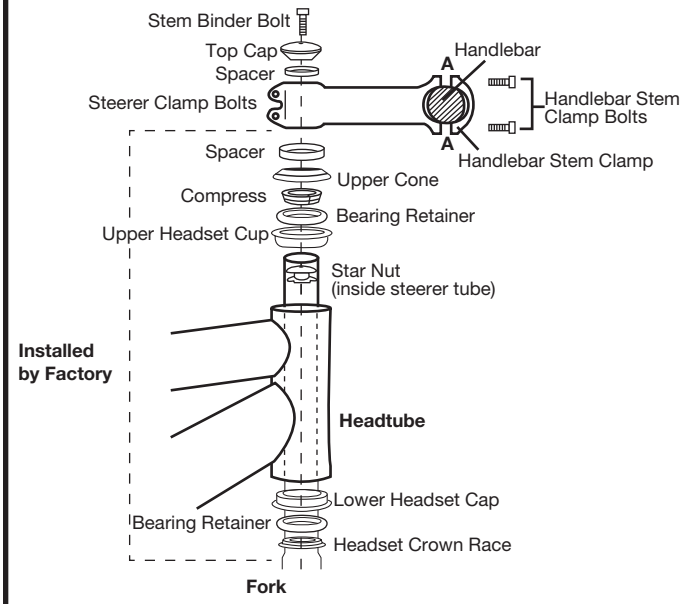


⚠ WARNING

A loose stem bolt can cause a loss of steering control and result in serious injury or death. The stem must be tight enough for the wedge nut to bite into the inner surface of the steer tube.

Important Note: Test the security of the handlebar stem within the steer tube of the front fork by clamping the front wheel between your knees and trying to move the handlebar and/or stem from side to side. The handlebar should not move independent from the front wheel when applying pressure.

FIGURE Y



You can adjust the handlebar height a bit by adjusting stem height. A quill stem has an etched or stamped mark on its shaft which designates the stem's "Minimum Insertion" or "Maximum Extension". This mark must not be visible above the headset. There are different styles of handlebar clamps, but all attach to the bicycle with a stem bolt and wedge nut.

! WARNING

A quill stem's Minimum Insertion Mark must not be visible above the top of the headset. If the stem is extended beyond the Minimum Insertion Mark the stem may break or damage the fork's steerer tube, which could cause you to lose control and fall.

If your bike has a "threadless" stem (figure Y) the stem has been installed in the factory and to change handlebar height requires moving height adjustment spacers from below the stem to above the stem, or vice versa. Otherwise, you'll have to get a stem of different length or rise. Do not attempt to do this yourself, as it requires special knowledge and your bicycle should be taken to a professional bike shop for this adjustment.

FIGURE 1

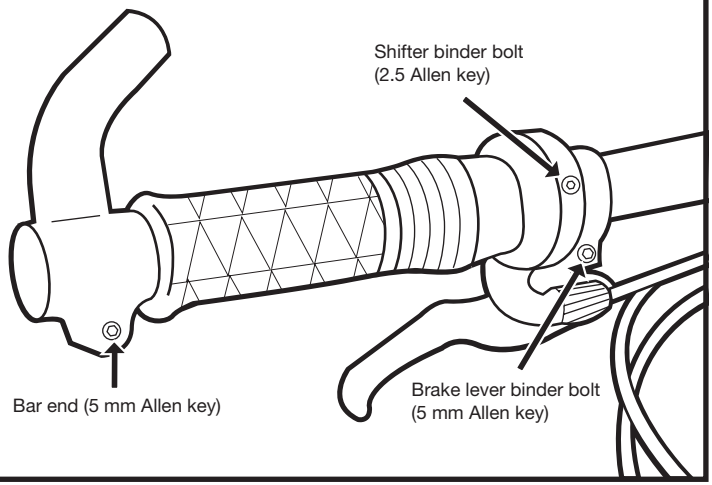
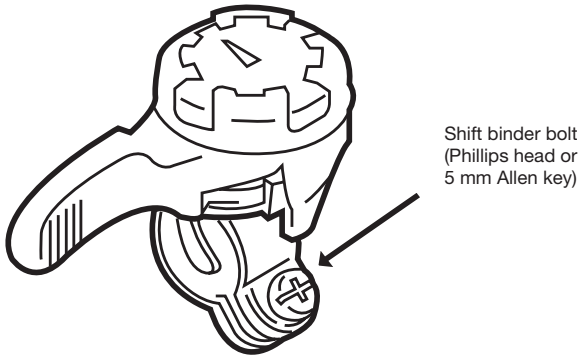


FIGURE 2



ROTATION OF SHIFTERS, BRAKE LEVERS AND BAR ENDS

Tighten all bolts that clamp the shifter, brake levers, and bar ends to the handlebar using a 5 mm Allen key or Phillips head screwdriver. (figure 1) Handlebar with grip shifter. (figure 2) Top mounted thumb shifter.

NOTE: When assembling the bicycle or setting it up for a rider, the shifters, brake levers and bar ends may need to be rotated on the handlebars to a position that allows safe and easy operation of the controls.

⚠ WARNING

Failure to properly tighten clamping bolts may cause sudden movement of the component resulting in loss of steering control, and serious injury or death.

FORKS

There are two different types of forks that range in styles and dimensions. One type is a rigid fork (figure 1) consisting of stationary tubing with curved blades. The other type is a suspension fork (figure 2) consisting of stanchion tubes riding on elastomers or springs inside of a straight fork leg. This mechanism acts as a shock absorber with a specified amount of travel that varies between models. If service is needed on a suspension fork, consult a professional bicycle repair technician.

! CAUTION

Do not attempt to disassemble a suspension fork yourself. Consult a professional bicycle repair technician.

Check the tightness of the headset and the fork. Rotate the fork checking for smoothness. If it feels like the fork is binding, then an adjustment will need to be made to the headset. Move the fork in a push/pull manner checking for tightness. If any play is detected, loosen the top nut (shown on page 87). Recheck the rotation and tightness. If necessary, readjust until a smooth rotation is achieved without backward or forward movement. If your bike is equipped with a suspension fork, check that the fork compresses and rebounds smoothly. To do this, place the fork dropouts against the ground, push and release the handlebar. The fork will generally compress 1 - 2 inches and rebound quickly. Most elastomer type forks will gradually soften with use.

FIGURE 1

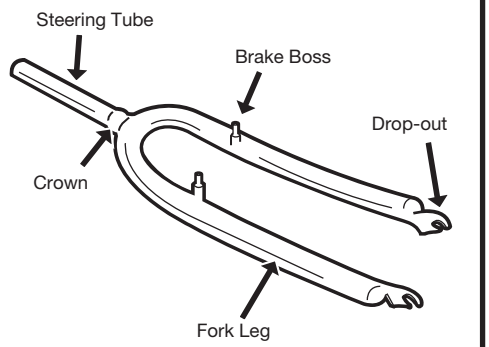
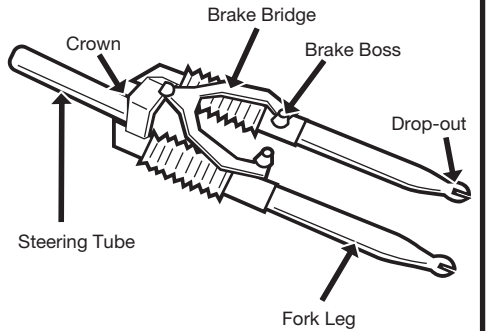
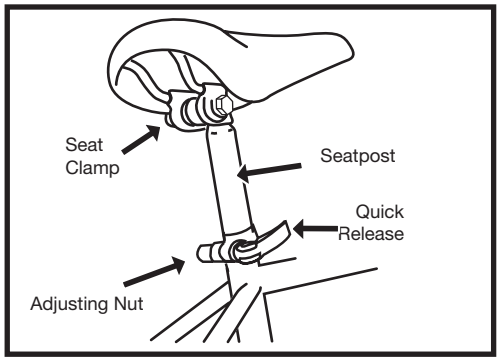


FIGURE 2



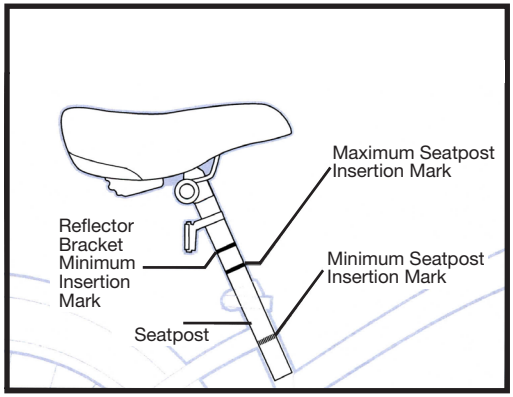


SEAT AND SEATPOST

Attach the seat to the seatpost by loosening the nuts on the seat clamp. Insert the tapered end of the seatpost into the seat clamp until it is at the top of the clamp. Partially tighten the nuts on the seat clamp turning each side evenly until the seat is snug, but can still be turned. Insert the seat assembly into the frame of the bicycle and adjust the seat to the proper height. The seatpost must be inserted to at least the “Minimum Insertion” line marked on the seatpost. If equipped with a quick release, tighten the adjusting nut by hand and move the quick release lever to the closed position. You should feel considerable resistance while moving the lever. If not, reopen and retighten the lever, then move it to the closed position so it is in line with the frame as pictured. Ensure the lip on the binder clamp is fitted completely against the top of the seat tube of the frame. With the seatpost inserted, tighten the binder bolt securely. Position the top of the seat parallel with the ground. Push the front of the seat up and down to firmly mesh the serrations together. The serrations must mesh completely together to ensure a stabilized riding position. Securely tighten the nut on the seat clamp. If there is a nut on both sides of the clamp, tighten each one by alternating from one to the other. Check for tightness by twisting the seat from side to side, and from front to back. If the seat moves at the seat clamp or quick release, reposition and retighten the appropriate clamping mechanism.

NOTE: Comfort style bicycles may be equipped with a suspension seatpost (see diagram - upper left).

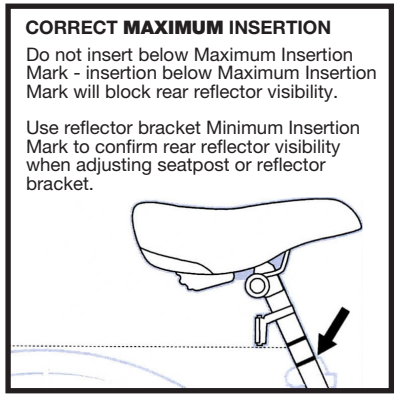
SEATPOST MAXIMUM AND MINIMUM INSERTION MARK

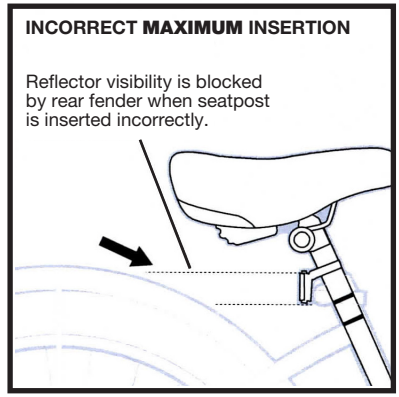


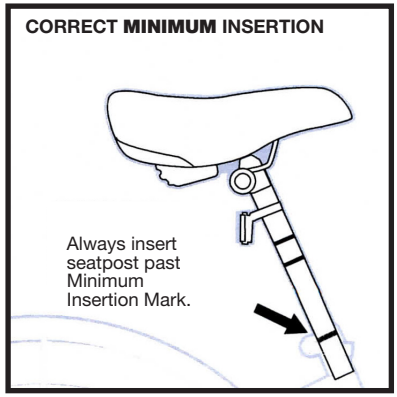
This bike is equipped with a seatpost which has Maximum and Minimum Insertion Marks.

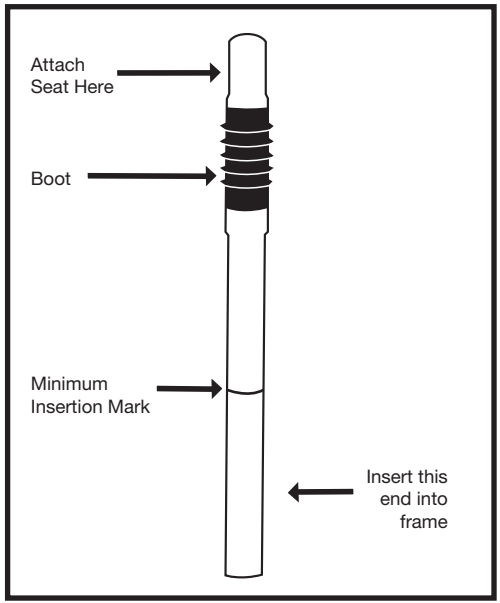
WARNING

The seatpost must be inserted so that the Minimum Insertion Mark cannot be seen. The quick release mechanism must be tightened securely to prevent a sudden shift of the seat when riding. Failure to do this may cause loss of bicycle control and serious injury or death.


CORRECT MAXIMUM INSERTION
Do not insert below Maximum Insertion Mark - insertion below Maximum Insertion Mark will block rear reflector visibility.
Use reflector bracket Minimum Insertion Mark to confirm rear reflector visibility when adjusting seatpost or reflector bracket.





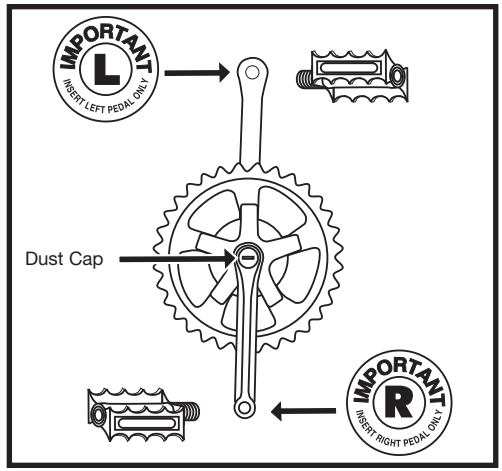


NOTE: Comfort style bicycles may be equipped with a suspension seatpost (see diagram - left).

PEDALS AND CRANK SET

Check for the right (R, red) sticker and left (L, green) sticker on each pedal and crank arm. Match the appropriate pedal to each crank (right to right and left to left) for assembly. Start each pedal spindle by hand to avoid stripping the threads. Tighten with a 15 mm narrow open ended wrench so that the shoulder of the pedal spindle is securely tightened against the crank arm. Note that the right hand pedal attaches to the chainwheel side crank arm with a right-hand (clockwise) thread. The left pedal attaches to the other crank arm and has a left-hand (counter-clockwise) thread. It is very important that you check the crank set for correct adjustment and tightness before riding your bicycle.

New three piece cranks whether bolted (cotterless) or boltless (binder end) may become loose with initial use, refer to pages 96 - 100 for crank type identification and instructions for adjustment and maintenance. Once the pedals have been installed, remove the dust caps from the center of each crank arm. Using a 14 mm socket wrench, tighten the spindle nuts securely and replace the dust caps. This tightening may have to be repeated during initial use.

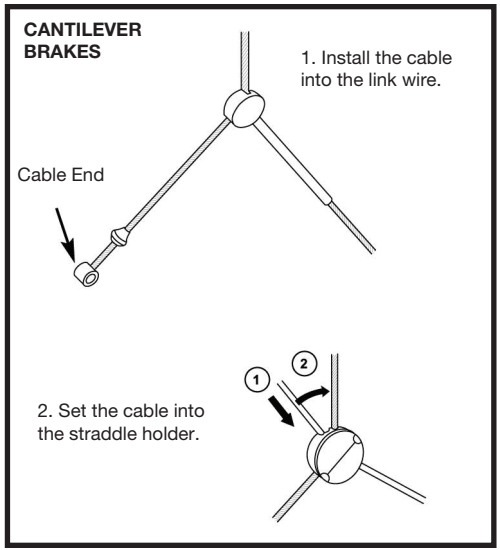


⚠ WARNING

Attachment of an incorrect pedal into a crank arm will cause irreparable damage. Unless the shoulder of the pedal spindle is tight to the face of the crank arm, the pedal may back out causing serious injury or death. Make it tight so the shoulder is in complete contact with the surface of the crank arm. Before your first ride, please check to ensure your pedals are attached correctly.

⚠ WARNING

Never ride your bike if the cranks are loose. This could damage the crank arms beyond repair, and result in a loss of control, injury or death.



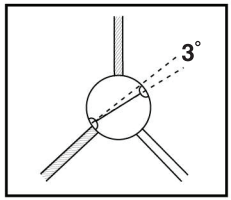
BRAKES

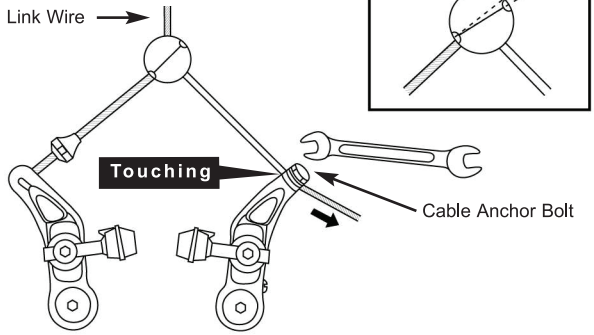
Determine which type of brake your bike is equipped with and refer to the appropriate assembly instructions. For more information on brake adjustment and maintenance, refer to pages 35-41.

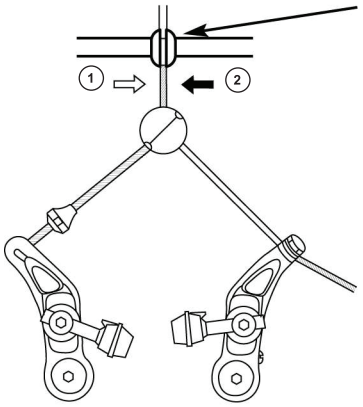
CANTILEVER BRAKES - UTILIZING A LINK WIRE

If fitted with cantilever types brakes, insert the brake cable into the link wire lead, and notch the cable end into the slot of the left brake arm. Loosen the anchor bolt on the right brake arm and slide the brake cable under the tabbed washer. Squeeze both brake arms together so the brake shoes hit the rim, pull all slack out of the brake cable, tighten the anchor bolt. With the cable fitted, the straddle holder should sit 10 - 20 mm above the reflector bracket. Adjust the brake shoes using a 10 mm wrench so that they are parallel with the rim and are positioned 1 - 2 mm away from the rim. Several adjustments may be necessary to achieve the correct brake position.

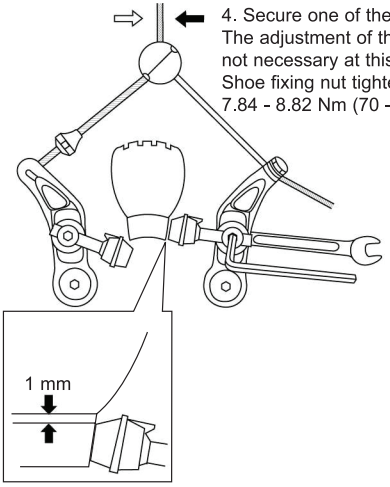
3. Temporarily tighten the cable so that the link wire is at the position in the illustration.

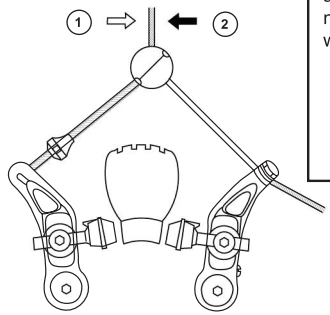




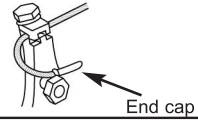


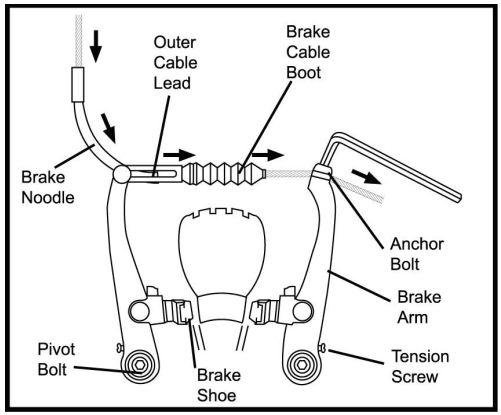
4. Secure one of the shoes at a time. The adjustment of the shoe clearance is not necessary at this time.
Shoe fixing nut tightening torque: 7.84 - 8.82 Nm (70 - 78 in/lbs.)





Cut off any unnecessary cable, attach an end cap, and hook it onto the notched part of the nut which secures the shoe.



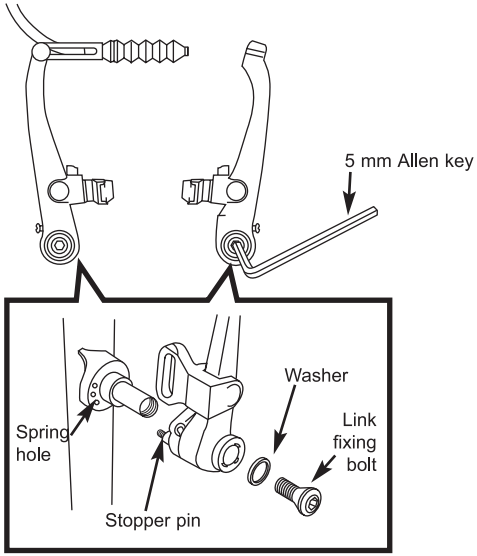


V-STYLE BRAKES

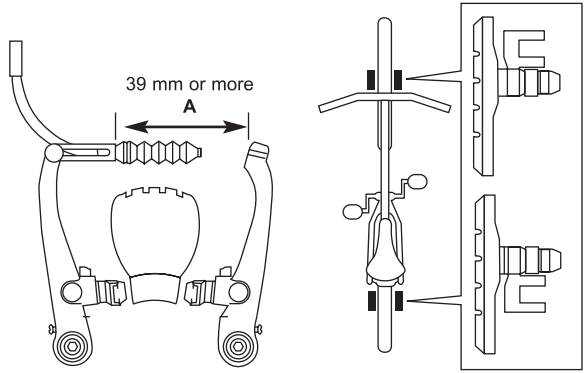
If not already assembled, take the brake noodle from the parts box and slide the cable through the larger opening. The cable housing will then seat into the end of the noodle. Slide the cable through the cable lead on the end of the left brake arm, this will cause the noodle to fit into the lead. Always make sure that the noodle is properly seated in the outer cable lead. Slip the brake cable boot over the cable and position it between both brake arms. Next, loosen the 5 mm anchor bolt at the end of the right brake arm and slide the cable under the retaining washer. Pull the slack out of the cable making sure a distance of 39 mm or more remains between the end of the lead and the start of the anchor bolt. Once the cable is secured to the brake arms, engage the brake lever several times, checking the position of the brake shoes at the rim. The brake shoes should be 1 mm away from the rim when in a relaxed position. When the brake lever is engaged, the brake shoe should hit the rim flush (never the tire) with the front touching slightly before the rear. If this position is not achieved, adjustments to the brake shoe is required. Loosen the brake shoe and cable adjustments before the required position is accomplished.

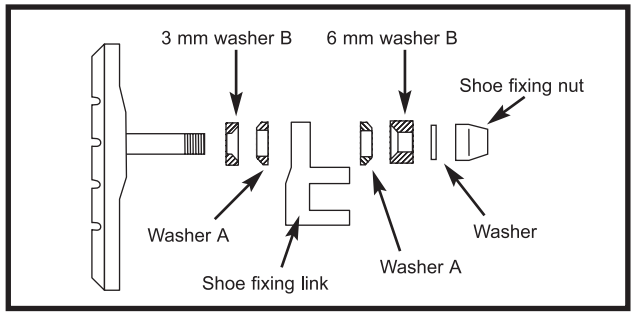
V-BRAKE

1. If fitted with V-Brakes, insert the brake body into the center spring hole in the frame mounting boss, and then secure the brake body to the frame with the link fixing bolt.

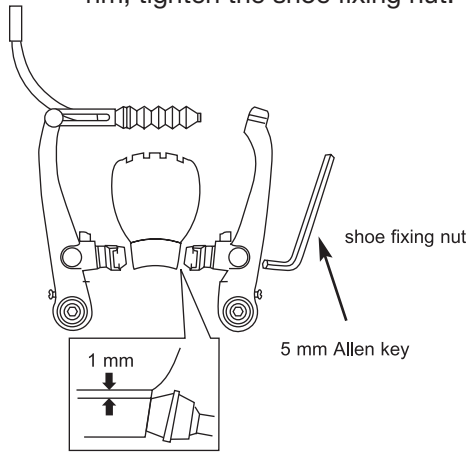


2. While holding the shoe against the rim, adjust the amount of shoe protrusion by interchanging the position of the B washers (i.e. 6 mm and 3 mm) so that dimension A is kept at 39 mm or more.

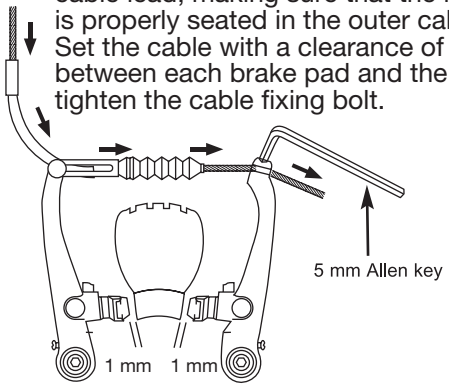




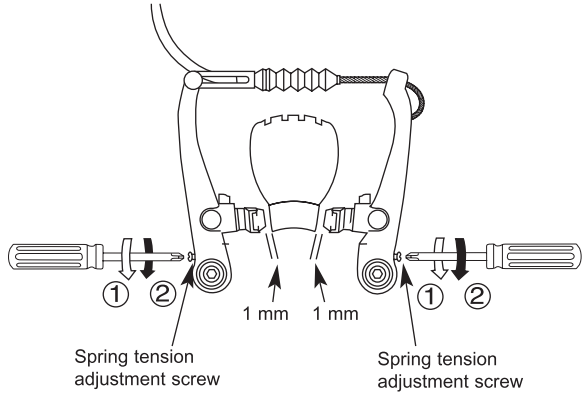
3. While holding the shoe against the rim, tighten the shoe fixing nut.



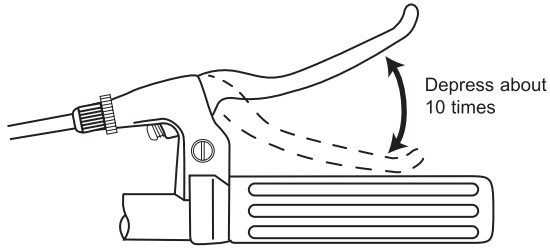
4. Pass the inner cable through the inner cable lead, making sure that the noodle is properly seated in the outer cable lead. Set the cable with a clearance of 1 mm between each brake pad and the rim, tighten the cable fixing bolt.



5. Adjust the balance with the spring tension adjustment screws.



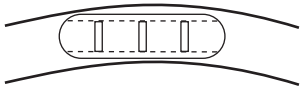
6. Depress the brake lever about 10 times as far as the grip to check that everything is operating correctly and that the shoe clearance is correct before using the brakes.



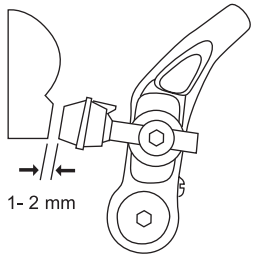
CHECK YOUR BRAKES

Press each brake lever to make sure that there is no binding and that the brake pads press hard enough on the rims to stop the bike. The brake pads should be adjusted so they are 1 mm to 2 mm away from the rim when the brakes are not applied. Brake pads should be centered on the rim and the rear portion of each brake pad should be about 0.5 - 1.0 mm farther from the rim than the front portion of the brake pad.

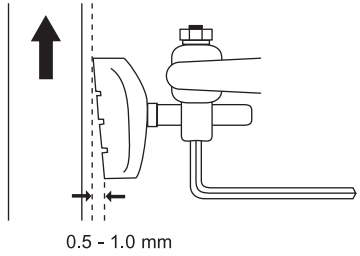
Brake pad aligned with the rim surface.



Pad and rim should be parallel.



Direction of rim rotation.



! CAUTION

Do not ride the bicycle until the brakes are functioning properly. To test, apply the brakes while trying to push the bike forward to make sure they will stop the bicycle. Never ride a bicycle that is not functioning properly.

! WARNING

Sudden or excessive application of the front brake may pitch the rider over the handlebars, causing serious injury or death.

DISK BRAKES

Some models of bicycles may be equipped with disk brakes. The set up and maintenance of disk brakes vary by model and manufacturer, please read the instructions supplied with your bicycle for the specific instructions and warnings for the disk brakes supplied on your bicycle before adjusting your brakes or riding your bicycle.

Disk brakes require breaking in before full breaking power is achieved. While the break in period varies by model and manufacturer, a distance of 13 miles or 40 to 50 applications is the minimum before using the brakes for downhill conditions, for sudden stops, or other serious braking. Please read the specific instructions and warnings for the disk brakes supplied on your bicycle before riding your bicycle. Disk brakes are extremely powerful. You should take extra care in becoming familiar with brakes and exercise particular care when using them.

! WARNING

DISK GETS HOT! Severe injury could result from contact with the hot disk. Mind your legs, as well as your hands.

! CAUTION

These brakes require breaking in! Ride and use the brakes gently for 13 miles before using the brakes in downhill conditions, for sudden stops, or any other serious braking. Please be aware that your brake system will change in performance throughout the wear-in process. The disk brake should be cleaned before the first ride using rubbing alcohol. NEVER use oil or similar products to clean your disk brake system.

DERAILLEUR

Although the front and rear derailleur are initially adjusted at the factory, you will need to inspect and possibly readjust both before riding the bicycle.

REAR DERAILLEUR

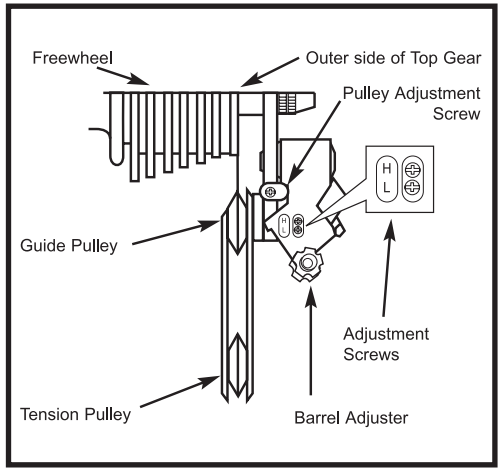
Begin by shifting the rear shifter to largest number indicated, disconnect the cable from the rear derailleur cable anchor bolt, and place the chain on the smallest sprocket. Adjust the High limit screw so the guide pulley and the smallest sprocket are lined up vertically. Reconnect the cable, pull out any slack, and retighten the anchor bolt securely. Shift through the gears, making sure each gear achieved is done quietly and without hesitation. Shift the rear shifter to gear one and place the chain on the largest cog. Adjust the Low limit screw in quarter turn increments until the guide pulley and the largest cog are aligned vertically. Again, shift through each gear several times, checking that each gear is achieved smoothly. It may take several attempts before the rear derailleur and cable is adjusted properly. (See top drawing.)

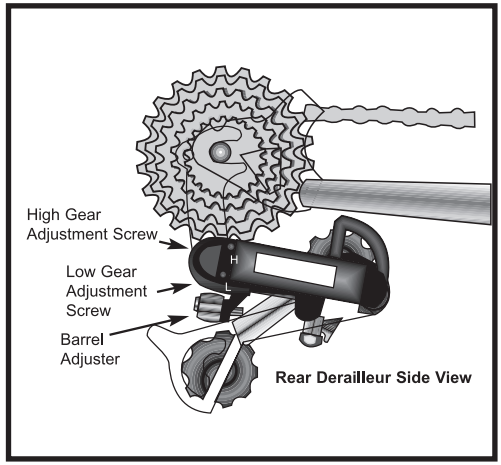
NOTE: Some bicycles may be equipped with a rear derailleur mechanism that works in reverse to the directions above.

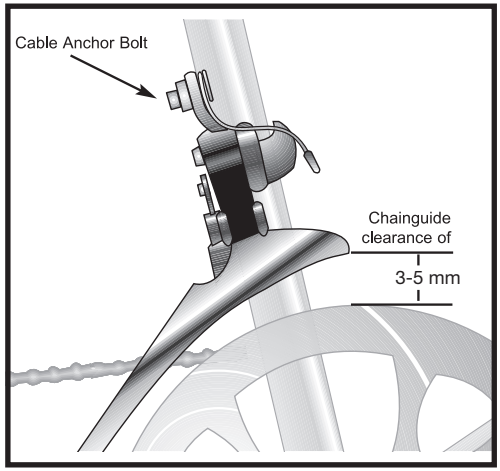
Some derailleurs may have an adjusting barrel (see bottom drawing). Use the adjusting barrel to fine tune the adjustment of the chain location. Turning the adjusting barrel clockwise will move the derailleur inboard - towards the wheel, while turning it counterclockwise will direct the chain outboard - away from the wheel.

! WARNING

Ensure all bolts are secured tightly and the chain does not fall off in either direction. A loose chain can cause a lose of control and serious injury.







FRONT DERAILLEUR

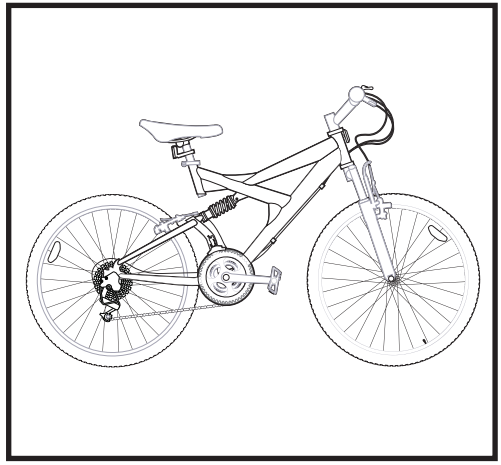
Shift both shifter to the smallest number indicated and place the chain on the corresponding cog and chainwheel. Disconnect the front derailleur cable from the cable anchor bolt. Check the position of the front derailleur; it should be parallel with the outer chainwheel and clear the largest chainwheel by 3 - 5 mm when fully engaged. With the chain on the smallest chainwheel in front and the largest cog in the back, adjust the Low limit screw so the chain is centered in the front derailleur cage. Reconnect the cable, pull any slack out, and tighten the anchor bolt securely. Shift the front shifter to the largest chainwheel. If the chain does not go onto the largest chainwheel, turn the High limit screw in 1/4 turn increments clockwise until the chain no longer falls off. Some shifters may have an adjusting barrel to fine tune the adjusting of the chain location. Turn the adjusting barrel clockwise will move the derailleur inboard - towards the frame, while turning it clockwise will direct the chain outboard - away from the frame.

! WARNING

Do not ride a bicycle that is not shifting properly. Overlooking proper adjustments may cause irreparable damage to the bicycle and/or bodily injury. Never move the shifter while pedaling backward, nor pedal backwards after having moved the shifter. This could jam the chain and cause serious damage to the bicycle and/or rider.

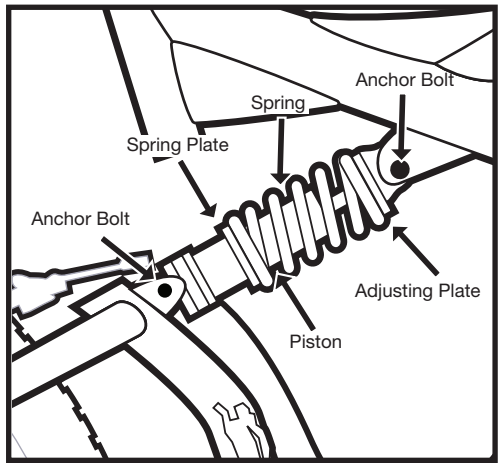
DUAL SUSPENSION

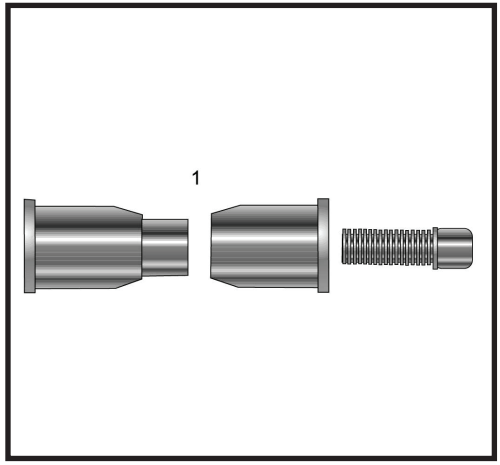
Dual suspension bikes are equipped with a front fork as well as a rear suspension generally located below the seat. The rear suspension unit is a combination of a piston that works in conjunction with a spring to allow the rear swing arm to rotate on a pivot point. Ensure all attaching hardware is secured and there is no lateral movement of the rear triangle. The amount of Rear Suspension travel can be adjusted by turning the adjusting plate. Clockwise will increase spring tension and decrease travel, while turning counterclockwise will decrease spring tension and increase travel. There are many different types of suspension systems, too many to deal with individually in this manual.

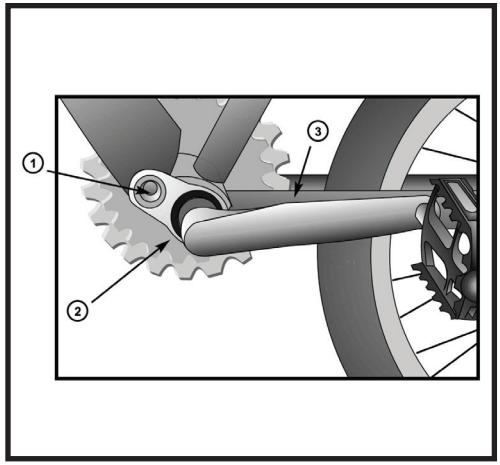


⚠ WARNING

There must be enough tension on the spring to hold the spring plate in place. Failure to do this may cause the mechanism to fail. Failure to maintain, check and properly adjust the suspension system may result in suspension malfunction, which can cause you to lose control and fall. Changing suspension adjustment can change the handling and braking characteristics of your bicycle. Always check for changes in the performance of your bicycle by taking a careful test ride in a hazard free area. If your bike has suspension equipment, the increased speed you may develop also increases your risk. When braking, the front of a suspended bike dips. You could lose control and fall if your skill is not up to handling this system. Get to know how to handle your suspension system safely before trying any downhill or very fast biking.







REAR PIVOTS

The pivot assembly is a simple mechanism that allows the rear swing arm to move up and down in combination with a rear suspension unit. Size, shape and components will vary between models; however, operating principles are the same. The pivot point consists of a split bushing set, held in place by a bolt that rotates inside of fixed bushings in the frame. The pivot point should be kept clean and free of grime, and should be disassembled and regreased at least once a season. Please note that on some models the driver side crank arm must be removed from the spindle before attempting to work on the pivot. After removing the fixing bolt, the bushings may need to be tapped out using a drift, punch or other blunt ended tool. After disassembly and cleaning, the parts should be lightly coated with a lithium-based grease. Reassemble the pivot bushing assembly and tighten the fixing bolt securely.

NOTE: Never use WD-40 or similar products to grease or lubricate components. It is a degrease that will not provide required lubrication and has a tendency to attract dust.

1. Pivot Assembly
2. Bottom Bracket Cup and Lockring
3. Rear Triangle

ACCESSORIES

Your bike may come with some or all of these accessories that require attachment and/or assembly.

Kickstand

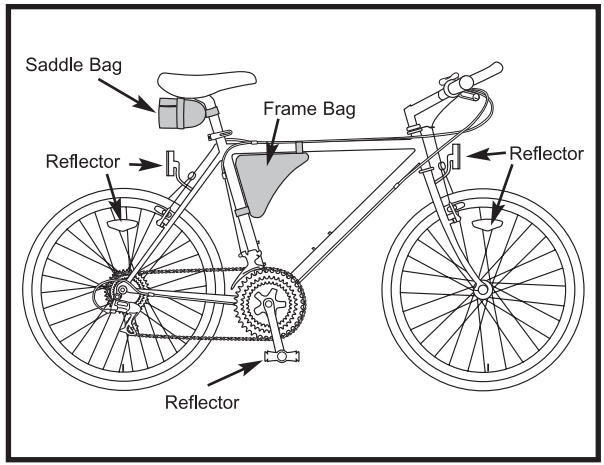
If the kickstand is not mounted to your bicycle, place the bicycle in an upright position against a wall or have someone hold it upright. Place the kickstand in the bracket mounted on the frame and use the fixing bolt secure the kickstand in place. Be sure to tighten the fixing bolt securely. Some kickstands use a top plate to locate the bolt and secure the kickstand using a fixing bolt. Be sure to tighten the axle nut. The guard will sit between the frame and the axle nut.

Rear Derailleur Guard

Other: Some 20", 24" and 26" model bicycles come with a rear derailleur guard to protect the rear derailleur from damage. To install, remove the rear wheel axle nut on the drive side, install the rear derailleur guard over the axle with the U-shaped guard pointing down, and retighten the axle nut. The guard will sit between the frame and the axle nut.

Reflectors

Attach the white reflector to the front reflector bracket and secure to the fork or handlebar using the hardware provided. Attach the red reflector to the rear reflector bracket and secure to the frame or seatpost, depending on the bracket style, with the hardware provided.



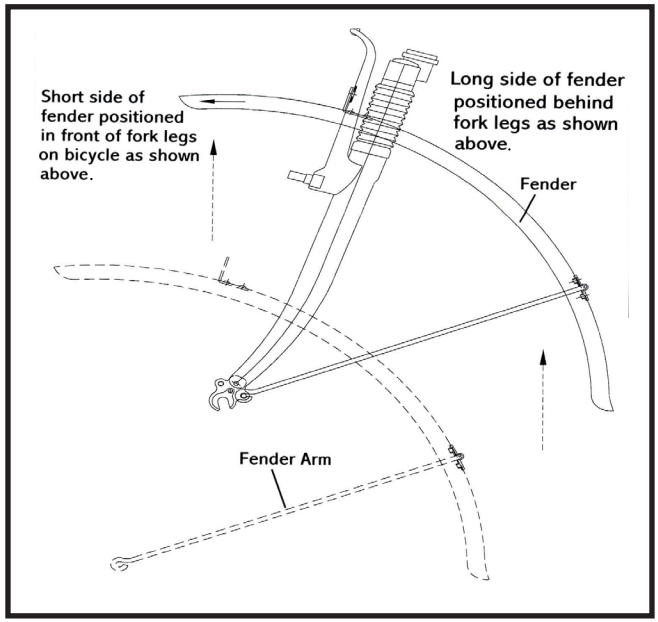
⚠ WARNING

Tighten both rear wheel axle nuts. Failure to do this may cause the rear wheel to dislodge from the frame dropouts resulting in serious damage or injury.

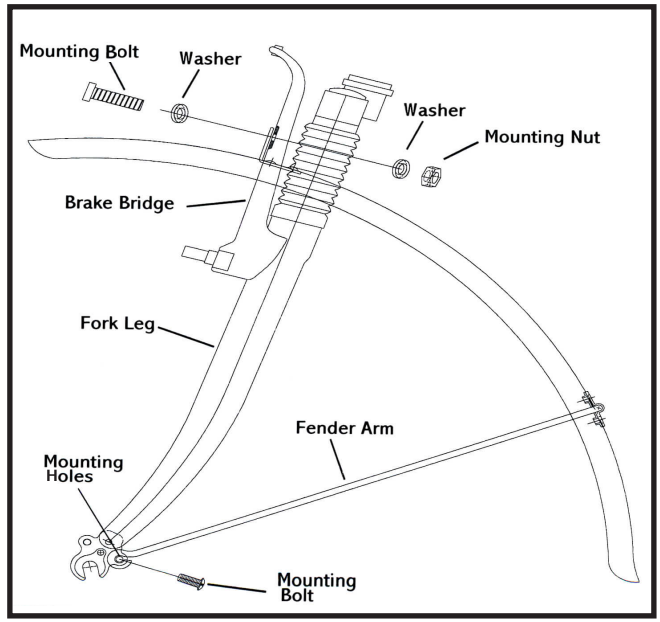
⚠ WARNING

The kickstand is designed to support the BICYCLE ONLY; not the bicycle and the rider.

FRONT FENDER ASSEMBLY FOR SHOCK FORKS


Short side of fender positioned in front of fork legs on bicycle as shown above.
Long side of fender positioned behind fork legs as shown above.
Fender
Fender Arm

1. With front wheel off, install preassembled fender into fork legs facing forward with fender bracket positioned behind the fork.

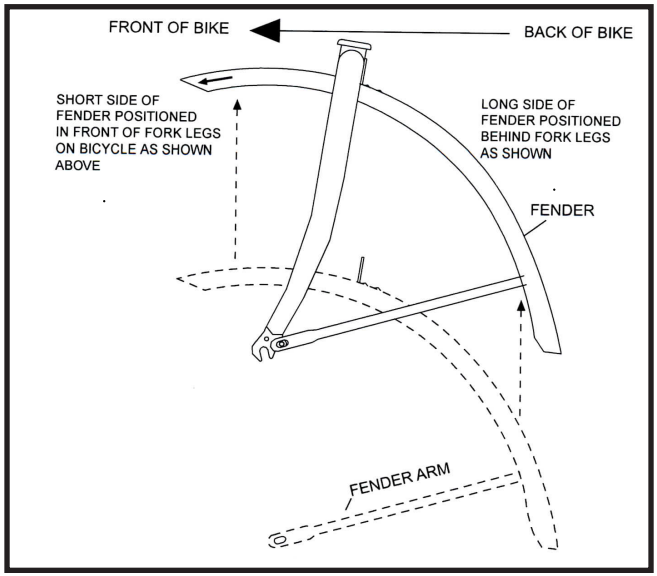


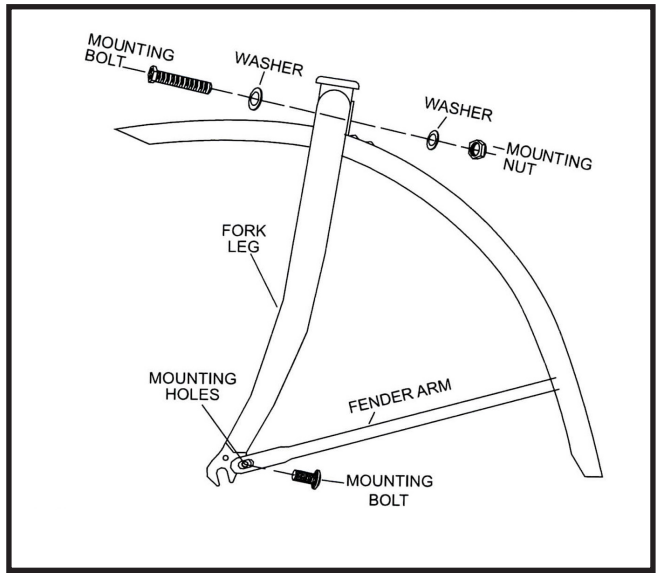
2. Slide a washer onto the mounting bolt and insert through brake bridge and fender bracket. Place the other washer onto the mounting bolt and secure the mounting nut as shown above.

3. Attach fender arms (align the fender arm holes with the mounting holes on the fork end). Then insert the mounting bolts through the fender arm holes to secure the bolts into the fork holes.

4. Attach front wheel (shown on page 26).

FRONT FENDER ASSEMBLY FOR REGULAR FORKS


FRONT OF BIKE
BACK OF BIKE
SHORT SIDE OF FENDER POSITIONED IN FRONT OF FORK LEGS ON BICYCLE AS SHOWN ABOVE
LONG SIDE OF FENDER POSITIONED BEHIND FORK LEGS AS SHOWN
FENDER
FENDER ARM



1. Install preassembled fender into fork legs facing forward with fender bracket positioned behind the fork.

NOTE: Be certain that all fender bolts and nuts are tightened prior to riding.

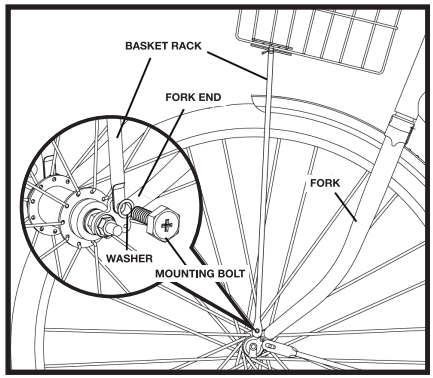
2. Slide a washer onto the mounting bolt and insert through fork and fender bracket. Place the other washer onto the mounting bolt and secure the mounting nut as shown above.

3. Attach fender arms (align the fender arm holes with the mounting holes on the fork end). Then insert the mounting bolts through the fender arm holes to secure the bolts into the fork holes.

4. Attach front wheel (shown on page 26) with retaining washer in place and axle nuts tight.

FRONT BASKET ASSEMBLY

Before assembling, loosen and remove all mounting bolts and nuts from mounting holes.



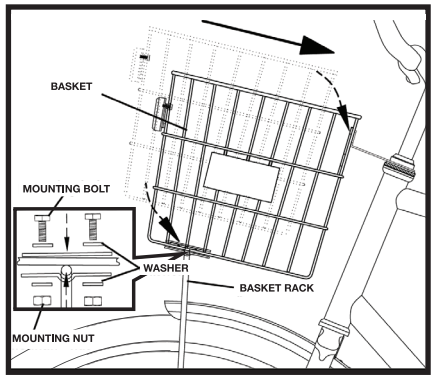
STEP 1

1. Position the basket rack to the fork end.

2. Slide the washer onto the mounting bolts.

3. Insert mounting bolts through basket rack and fork end.

4. Securely tighten mounting bolts.



STEP 2

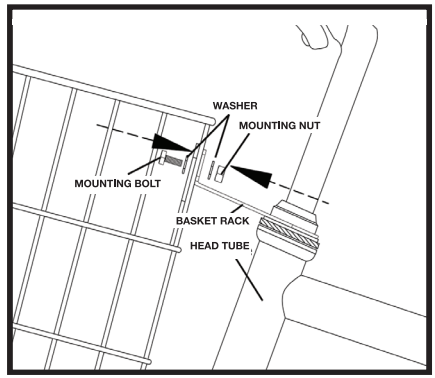
1. Position the basket against the basket rack.

2. Slide the washer onto the mounting bolts.

3. Insert mounting bolts through the basket.

4. Slide additional washers and then mounting nuts onto the mounting bolts.

5. Securely tighten the mounting nuts.



STEP 3

1. Position the basket against the basket rack of the head tube.

2. Slide the washer onto the mounting bolts.

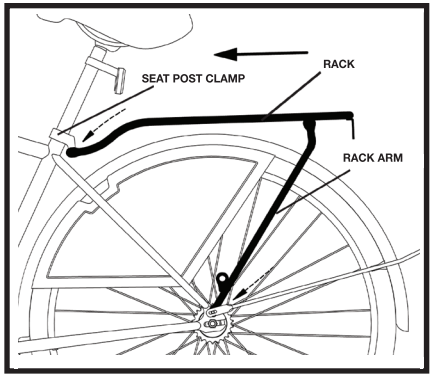
3. Insert mounting bolts onto clamp.

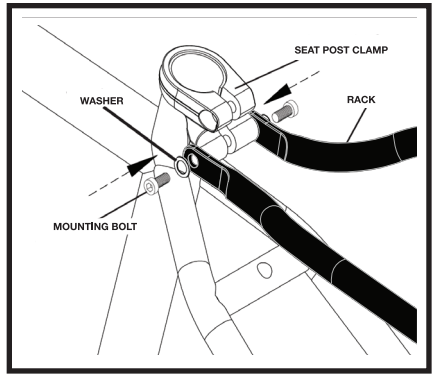
4. Slide additional washers and then mounting nuts onto the mounting bolts.

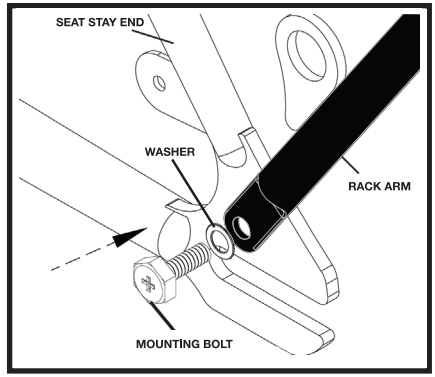
5. Securely tighten the mounting nuts.

REAR RACK ASSEMBLY

Before assembling, loosen and remove all mounting bolts and nuts from mounting holes.







STEP 1

1. Place rack onto rear of bicycle as shown above.

STEP 2

1. Position the rack against the seatpost clamp.
2. Slide the washer onto the mounting bolts.
3. Insert mounting bolts onto clamp.
4. Securely tighten mounting bolts.

STEP 3

1. Position the rack arm against the seat stay end.
2. Slide the washer onto the mounting bolts.
3. Insert mounting bolts through rack arm and then seat stay end.
4. Securely tighten the mounting bolts.

FINAL CHECK

• Check that the brakes operate smoothly with no binding. To test, apply the brakes while trying to push the bicycle forward to make sure they will stop the bicycle. Do not ride your bicycle unless the brakes are functioning properly.

• Test the security of the handlebar within the stem, and the stem within the fork steerer tube, by clamping the front wheel between your knees and trying to move the handlebar up and down, and from side to side. The stem and/or handlebar should not move when applying pressure.

• After all adjustments have been made, shift through every gear several times at varying speeds. This will ensure all your adjustments are correct and will allow you to pinpoint any trouble areas. If you encounter any problems, refer top the appropriate section and make any necessary adjustments.

• Check the tire pressure and inflate each tire to the recommended PSI as stated on the sidewall of the tire.

• Check that the kickstand operates smoothly and the kickstand bolt is secured tightly.

• Finally, examine the bicycle. Make sure all accessories are attached and all quick releases, nuts and bolts have been tightened securely.

• Correct maintenance of your bicycle will ensure many years of happy riding. Service your bicycle regularly by referring to the relevant sections of this manual, or take it to a professional bicycle shop.

Remember: Always wear a helmet and obey all traffic laws.

! WARNING

Never inflate a tire beyond the maximum pressure marked on the tire's sidewall. Exceeding the recommended pressure may blow the tire off the rim, which could cause damage to the bicycle and injury to the rider and bystanders.

SINGLE SPEED AND BMX

Includes 16” and 20” BMX bikes. Assembly is the same for boys and girls bikes. **Foreword:** Assembling a bicycle is an important responsibility. Proper assembly not only gives the rider more enjoyment of the bicycle; it also offers an important measure of safety.

GETTING STARTED

Open the carton from the top and remove the bicycle. Remove the straps and protective wrapping from the bicycle. Inspect the bicycle and all accessories and parts for possible shortages. It is recommended that the threads and all moving parts in the parts package be lubricated prior to installation. Do not discard packing materials until assembly is complete to ensure that no required parts are accidentally discarded. Assemble your bicycle following the steps that pertain to your model.

NOTE: Your bicycle may be equipped with different style components than the ones illustrated.

FRONTWHEEL

1. Make sure the brakes are loose enough to allow the wheel to pass through the brake pads easily.

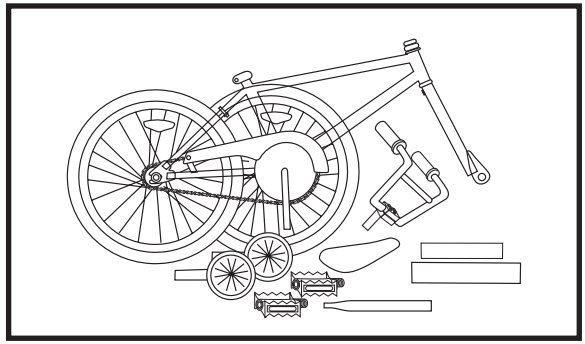
2. Place wheel into fork drop outs.

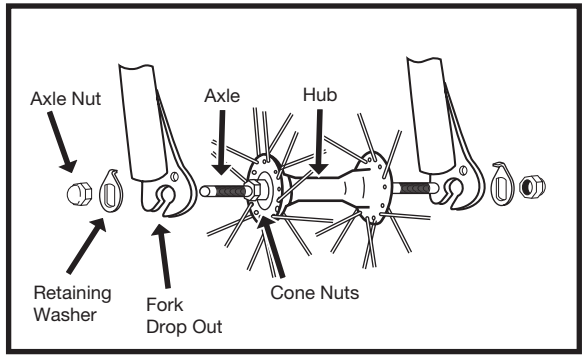
3. Install retaining washers with raised lip pointed towards the fork, and insert into the small hole of the fork blade.

4. Install axle nut and tighten. Make sure the wheel is centered between the fork blades.

5. Spin the wheel to make sure that it is centered and clears the brake shoes. Tighten the brakes if necessary.

6. Turn the bicycle upright using the kickstand to support it.

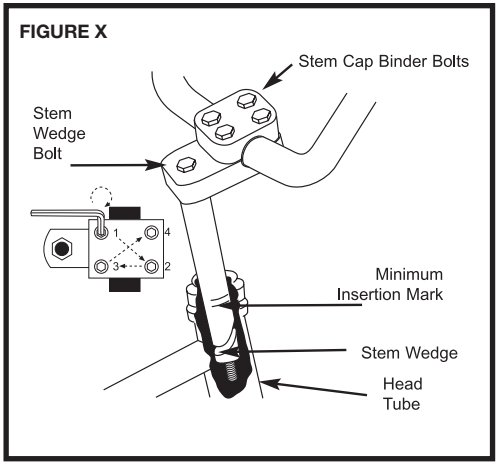




! WARNING

It is very important to check the front wheel connection to the bicycle. Failure to properly tighten may cause the front wheel to dislodge causing serious injury or death.

FIGURE X



HANDLEBARS

Most of our bikes are equipped with a “quill” stem (figure X). To assemble the handlebars remove the protective cap from the wedge end of the stem bolt and loosen the bolt using the 6 mm Allen key. Some models may use a 13 mm hexagonal bolt instead of an Allen key bolt. Place the handlebar stem into the top of the steer tube which is the top end of the fork that has been inserted into the head tube at the factory, ensuring that all cables are free of tangles. Tighten the stem bolt observing the Minimum Insertion Mark and checking that the forks and the handlebars are facing forward. After the stem bolt is tested tight (see **Important Note** below), adjust handlebars to correct position. After the handlebar stem has been fitted into the steer tube that is the top end of the fork and the two pieces made firm with in the head tube the action of a stem bolt upon the wedge nut binds with the inside of the steer tube to form a solid steering column.

IMPORTANT NOTE: Test the security of the handlebar stem within the steer tube of the front fork by clamping the front wheel between your knees and trying to move the handball and/or stem from side to side. The handlebar should not move independent from the front wheel when applying pressure.

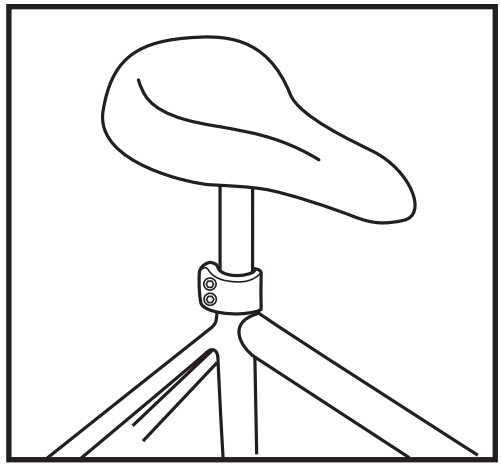
! WARNING

A loose stem bolt can cause a loss of steering control and result in serious injury or death. The Stem must be tight enough for the wedge nut to bite into the inner surface of the steer tube.

You can adjust the handlebar height a bit by adjusting stem height. A quill stem has an etched or stamped mark on its shaft which designates the stem’s “Minimum Insertion” or “Maximum Extension”. This mark must not be visible above the headset. There are different styles of handlebar clamps, but all attach to the bicycle with a stem bolt and wedge nut. Typical of the BMX bicycle is the four bolt pillow block configuration shown above. See page 83 for adjustment of this binder.

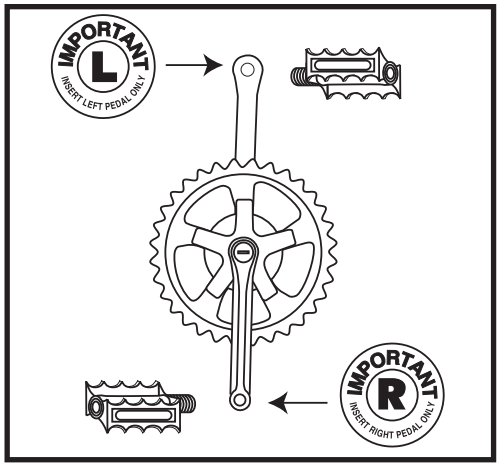
SEAT

Loosen nut on the seat clamp and add 3 or 4 drops of oil onto the threads of the bolt. Place the smaller end of the seatpost into the seat clamp until it stops with the bolt to the rear of the seatpost. Thread the nut on the seat clamp loosely. Insert the larger end of the seatpost into the seat tube of the bicycle frame observing the Minimum Insertion Mark on the seatpost. Position the top surface of the seat parallel with the ground. The serrations on the seat clamp must mesh completely with the seat frame serrations, push the front of the seat up and down to align the serrations. Securely tighten the seat clamp. Securely tighten the bolts on the seatpost clamp. If your bicycle is equipped with a quick release, refer to page 67 for proper adjustment instructions.



WARNING

The seatpost must be inserted so that the Minimum Insertion Mark cannot be seen.



PEDALS AND CRANK SET

Check for the right (R, red) sticker and left (L, green) sticker on each pedal and crank arm. Match the appropriate pedal to each crank (right to right and left to left) for assembly. Start each pedal spindle by hand to avoid stripping the threads. Tighten with a 15 mm narrow open ended wrench so that the shoulder of the pedal spindle is securely tightened against the crank arm. Note that the right hand pedal attaches to the chainwheel side crank arm with a right-hand (clockwise) thread. The left pedal attaches to the other crank arm and has a left-hand (counterclockwise) thread. It is very important that you check the crank set for correct adjustment and tightness before riding your bicycle.

! WARNING

Attachment of an incorrect pedal into a crank arm will cause irreparable damage. Unless the shoulder of the pedal spindle is tight to the face of the crank arm, the pedal may back out causing serious injury or death. Make it tight so the shoulder is in complete contact with the surface of the crank arm. Before your first ride, please check to ensure your pedals are attached correctly.

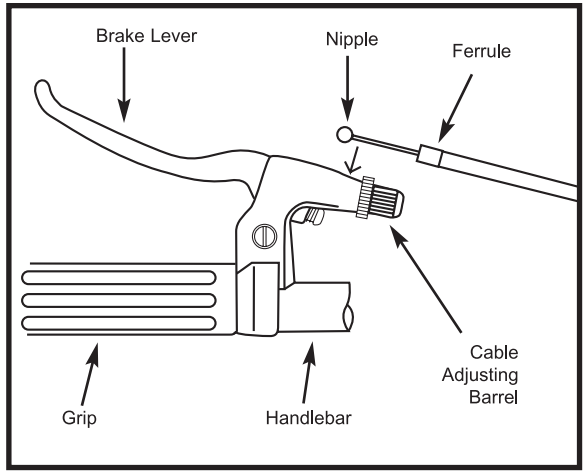
New boltless cranks may become loose with initial use, refer to page 100 for crank type identification and instructions for adjustment and maintenance. Tightening may have to be repeated during initial use.

! WARNING

Never ride your bike if the cranks are loose. This could damage the crank arms beyond repair, and result in a loss of control, injury or death.

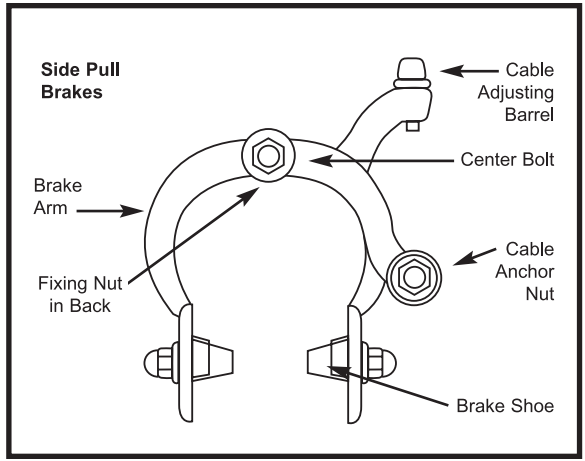
HAND BRAKE

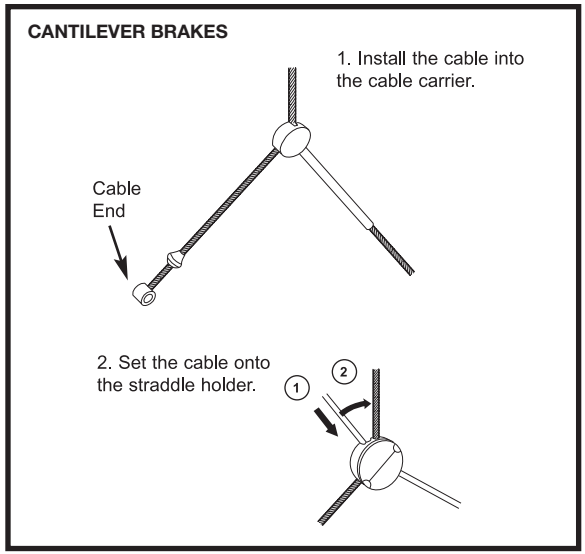
Determine which type of brake your bike is equipped with and refer to the appropriate assembly instructions. For more information on brake adjustment and maintenance, refer to pages 35-41. It is important to become familiar with the use of hand brakes. When properly adjusted, hand brakes are an efficient braking system. Keep the rim and brake shoes clean and free from wax, lubricants and dirt at all times. It is recommended that when using the cable adjusting barrel, the corresponding slots in the brake lever, cable adjusting barrel and locknut not be aligned. **Keep brakes properly adjusted and in good working condition at all times.**



SIDE PULL BRAKE

Loosen the cable anchor nut and thread the brake cable through it. Tighten the nut by hand until it holds the cable in place. Squeeze the brake arms together against the rim of the wheel. Loosen the nuts on the brakes shoes and turn until they match the angle of the rim. Tighten the nuts securely. Loosen the cable anchor nut and squeeze both brake arms together so that both brake shoes are in contact with the rim, pull all the slack out of the brake cable, and securely tighten the cable anchor nut. Spin the wheel, the brake shoes should not contact the rim at any point and should be an equal distance from the rim on both sides. Make sure all nuts and bolts are securely tightened. Test the brake levers 20-25 times to take care of any initial cable stretch. Be sure to tightly secure the brake fixing nut behind the fork.





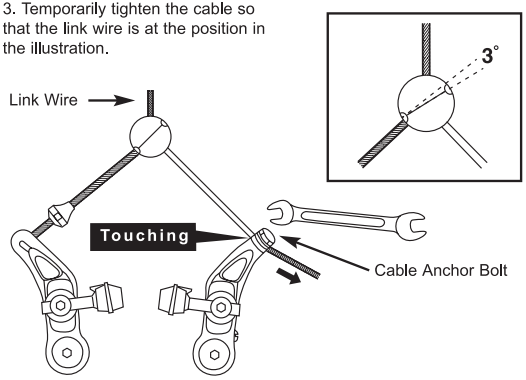
CANTILEVER

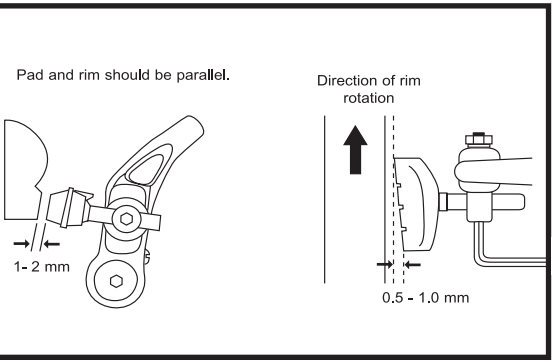
If fitted with cantilever type brakes, insert the brake cable into the link wire lead, and notch the cable end into the slot of the left brake arm. Loosen the anchor bolt on the right brake arm and thread brake cable through it. Adjust the brake shoes using a 10 mm wrench and 5 mm Allen key so that they are parallel with the rim and are positioned 1-2 mm away from the rim. Several adjustments may be necessary to achieve the correct brake position.

⚠ WARNING

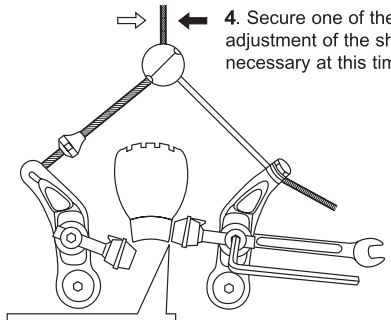
When assembling or adjusting the brakes, make sure the cable anchor is tight. Failure to securely tighten the nut could result in brake failure and personal injury.

3. Temporarily tighten the cable so that the link wire is at the position in the illustration.



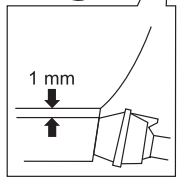


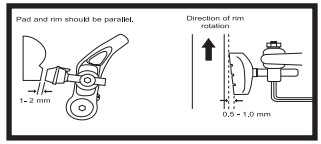
4. Secure one of the shoes at a time. The adjustment of the shoe clearance is not necessary at this time.



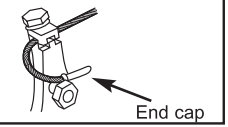
10 mm wrench

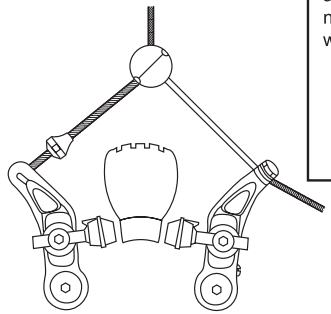
5 mm Allen key

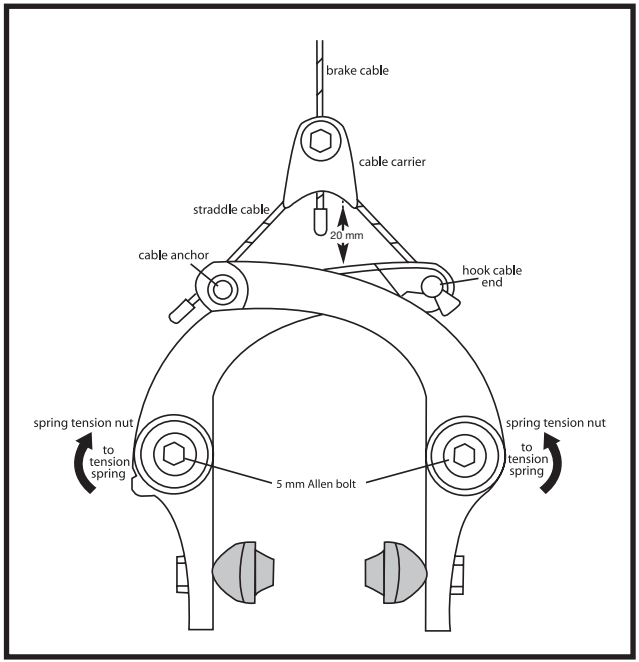




Cut off any unnecessary cable, attach an end cap, and hook it onto the notched part of the nut which secures the shoe.







U-BRAKE INSTRUCTIONS

Adjust the pads of the U-brake using a 10 mm wrench. Make sure the pad is hitting the rim and not the tire. Ideally the front of the pad should hit the rim approximately 1 mm before the rear pad. Next, tighten the Cable Carrier to the brake cable approximately 20 mm from the brake arms when they are closed against the rim. Attach the Straddle cable to the carrier. Hook cable end into the brake slot, pull excess straddle cable through the cable anchor and tighten the cable anchor. For brake adjustments, use a 13 mm box end wrench and a 5 mm Allen wrench and loosen the 5 mm Allen bolt. For the nondrive side (left), turn the spring tension nut with the 13 mm wrench and tighten the 5 mm Allen bolt. The tension on each side should be achieved, hold the tension nut with the 13 mm wrench and tighten the 5 mm Allen bolt. The tension on each side should be equal so that the brake arms move the same distance when the brake is activated. U-brakes installed on the front fork of a bicycle are generally slightly different than that pictured on the left in that they will not have a cable carrier, straddle cable or hook cable end. Rather, front U-brakes will have a cable anchor at the end of the brake arm. Adjustment for the front brakes is otherwise similar to that described above.

CHECK YOUR BRAKES

Press each brake lever to make sure that there is no binding and that the brake pads are hard enough on the rims to stop the bike. The brake pads should be adjusted so they are 1 mm - 2 mm away from the rim when the brakes are not applied. Brake pads should be centered on the rim and the rear portion of each brake pad should be about 0.5 - 1.0 mm farther from the rim than the front portion of brake pad.

! WARNING

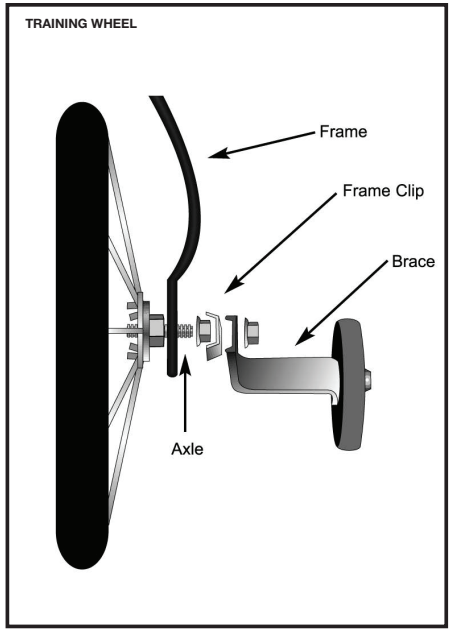
Do not ride the bicycle until the brakes are functioning properly. To test, apply the brakes while trying to push the bike forward to make sure they will stop the bicycle.

TRAINING WHEEL ASSEMBLY

1. Position frame clip over rear axle nut with tab located in frame axle slot.

2. Locate brace over frame clip and secure with nut using 15 mm or adjustable wrench.

3. The elongated hole on the brace allows for raising or lowering the training wheels to the proper height. Once proper height is determined, secure brace in position by tightening nut securely.



ROTORS

Some freestyle BMX bicycle come equipped with a detangler system that will allow the handlebar to spin 360 degrees without binding the cables.

! CAUTION

Bicycles not equipped with rotors do not have this capability for spinning the handlebars.

It is very important that this system is adjusted correctly. Installation should only be done by a qualified bicycle mechanic with the correct tools.

Upper Cable

1. First connect the barrel end of the upper cable to the rear brake lever. Make sure the long cable casing is on top of the short cable casing; otherwise, the upper cable will have a twist in it.

2. Route the upper cable through the handlebars (below the crossbar) with the short cable casing on the same side as the rear brake lever.

3. Connect the upper cable to the upper plate by passing the football ends of the upper cable through the threaded holes in the upper plate and connecting them to the bearing.

4. Screw the adjusting barrels into the upper plate. Don't tighten the locknuts at this time.

Lower Cable

1. Slide the cable casing through the cable guide on the frame.

2. Connect the lower cable to the lower plate by passing the football ends of the lower cable through the threaded holes in the lower plate and connecting them to the bearing.

3. Screw the adjusting barrels into the lower plate. Don't tighten the locknuts at this time.

4. Connect the lower cable to the rear brake. Don't adjust the rear brake at this time. **NOTE: Check to make sure all 11 cable casing ends on the upper and lower cables are seated correctly, and that the spring tension of the rear brake is pulling the bearing down.**

Adjustment

1. Screw the cable adjusters on the rear brake lever and the upper cable splitter all the way in.

2. Screw the adjusting barrels in the upper plate in (or out) to set the bearing for maximum travel. The bearing should be as far down as it can go without resting on the lower plate or the adjusting barrels screwed into the lower plate.

3. Use the adjusting barrels that are screwed into the upper plate to make the bearing parallel to the upper plate. Use a 10 mm wrench to tighten the locknut on the left adjusting barrel loose.

4. Screw the lower cable adjusting barrel into (or out of) the lower plate until they are as close to the bearing as they can get without touching it.

5. Screw the cable adjuster on the upper cable splitter out until all slack is removed from the upper cable. Then screw the cable adjuster out one more turn to raise the bearing an additional 1 mm away from the lower cable adjusting barrels.

6. Check for bearing flop by placing the handlebars in the normal riding position, then quickly rotate the handlebars back and forth. Perform the following steps to eliminate bearing flop. **NOTE: The bearing should never be allowed to rest on the lower plate or lower cable adjusting barrels.**

a) Screw the lower cable adjusting barrels out of (or into) the lower plate until all bearing flop is eliminated.

b) Tighten the locknut of the right adjusting barrel on the lower cable.

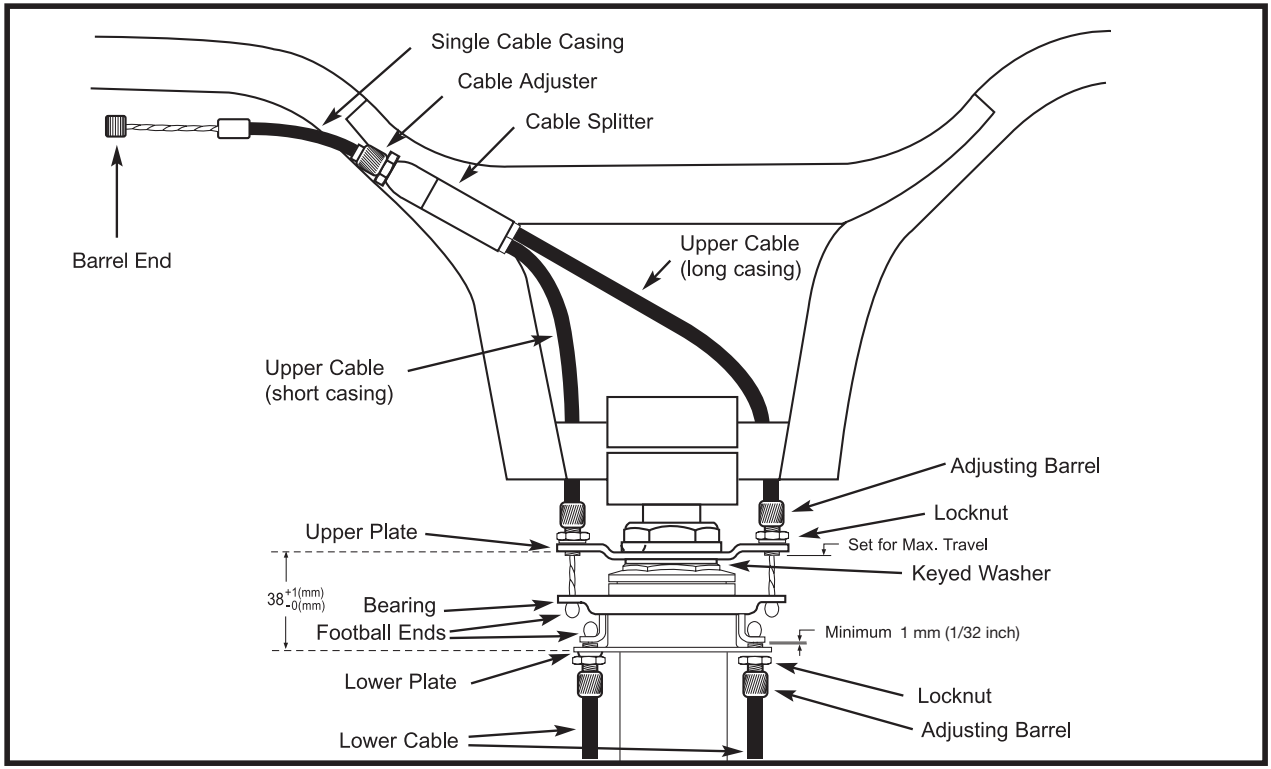
c) Rotate the handlebars 180 degrees and recheck for bearing flop. If there is any bearing flop, use the "loose" adjusting barrels on the upper and lower cable to remove it.

d) Repeat steps (6a) and (6c) until the handlebars can be rotated 360 degrees without any bearing flop.

7. Finish adjusting the rear brakes.

! CAUTION

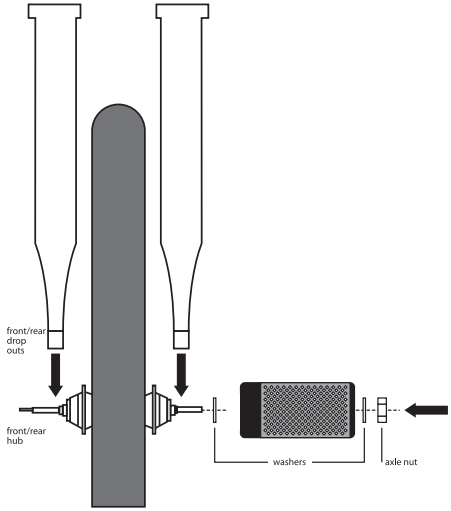
Do not screw the cable adjuster on the upper cable splitter out more than 8 mm. Use the cable adjuster on the rear brake lever if more adjustment is needed.

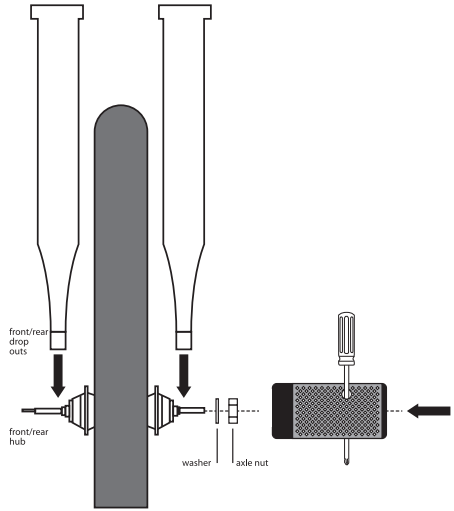


WARNING

Failure to adjust correctly may result in loss of braking power and personal injury.

PLEASE NOTE: Not all axles are able to accept axle pegs. Please consult your local bicycle specialist if you have any questions. Some BMX bicycles come with two or four pegs.





NON-THREADED

Make sure the axle nuts are tight with a 15 mm wrench or adjustable wrench. Place the domed washer (if supplied) over the axle and axle nut. Slide the peg onto the axle, and then using the supplied tool or a 15 mm socket and extended driver, thread the peg-fixing nut onto the axle. Tighten the nut clockwise until snug. Repeat for all the remaining pegs.

THREADED

This style of peg is threaded to fit the axle. Make sure axle nuts are tight using a 15 mm wrench or adjustable wrench. Place the domed washer (if supplied) over the axle and axle nut, and then thread the peg on the axle turning clockwise until snug.

FINAL CHECK

Install any additional parts that are supplied with your bike.

NOTE: Your bicycle may be equipped with different style components than the ones illustrated.

Reflectors: If not already attached, attach the reflector mounts to the bicycle (see page 20). Mount the white reflector on the front bracket and the red reflector on the rear bracket by sliding the reflectors over the brackets (see diagram, page 19) and ensure that the tab clicks into the top hole of the bracket. It is important to make sure that all connections are tightened securely and that the reflectors are properly angled.

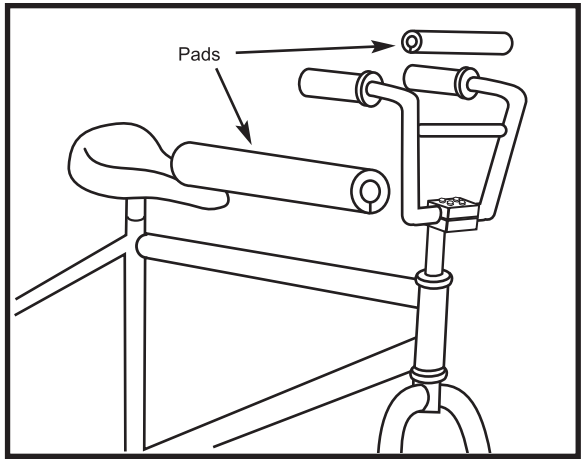
Pads: If your bike is supplied with pads, wrap the foam inner cushion around the appropriate bar. Place the outer cover over the inner cushion and press the Velcro together securely. Turn the pad so the Velcro faces the ground.

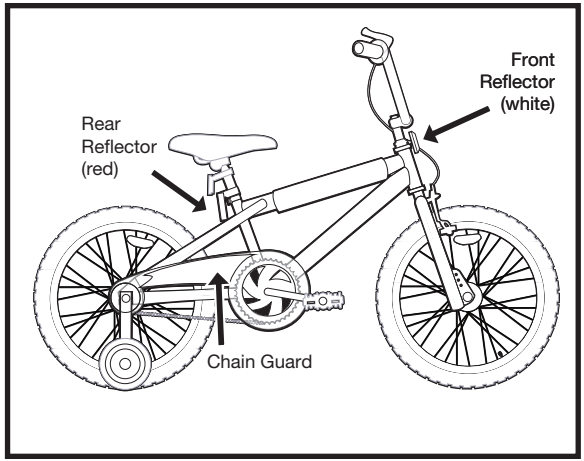
Chainguards: If not already attached, attach the chainguard to the bicycle frame using the hardware provided. Secure in place making sure the guard does not bind or get caught on the chain.

Tire Pressure: Check tire pressure, inflate to the range recommended on the tire sidewalls.

⚠ CAUTION

Before riding, ensure all nuts, bolts and fittings on the bicycle have been correctly tightened.





HOW THINGS WORK

It's important to your performance, enjoyment and safety to understand how things work on your bicycle. Even if you're an experienced bicyclist, don't assume that the way things work on your new bike is the same as how they work on older bikes. Be sure to read and to understand this section of the manual. If you have even the slightest doubt as to whether you understand something, talk to your local bicycle specialist. Call 1-800-551-0032 with any further questions.

REMOVING AND INSTALLING BOLT-ON WHEELS

A. Removing a Bolt-On Front Wheel

1. Open up the brake shoes.

2. With a 15 mm box wrench or a six inch adjustable wrench, loosen the two axle nuts.

3. If your front fork has a clip-on type secondary retention device, disengage it and go to step 4. If your front fork has an integral secondary retention device, loosen the axle nuts about six full turns; then go to step 4.

4. Raise the front wheel a few inches off the ground and tap the top of the wheel with the palm of your hand to knock the wheel out of the fork ends.

B. Installing a Bolt-On Front Wheel

1. With the steering fork facing forward, insert the wheel between the fork blades so that the axle sits firmly at the top of the slots which are at the tips of the fork blades. The axle nut washers should be on the outside, between the fork blade and the axle nut. If your bike has a clip-on type secondary retention device, engage it.

2. While pushing the wheel firmly to the top of the slots in the fork dropouts, and at the same time centering the wheel rim in the fork, use a six inch adjustable wrench or a 15 mm box wrench to tighten the axle nuts securely.

3. Close the brake shoes; then spin the wheel to make sure that it is centered in the frame and clears the brake shoes.

C. Removing a Bolt-On Rear Wheel

1. Open the rear brake shoes.

2. Shift the rear derailleur to high gear (the smallest rear sprocket) and pull the derailleur body back with your right hand.

3. With a 15 mm box wrench or a six inch adjustable wrench, loosen the two axle nuts.

4. Lift the rear wheel off the ground a few inches, and with the derailleur still pulled back, push the wheel forward and down until it comes out of the rear dropouts.

D. Installing a Bolt-On Rear Wheel

1. Shift the rear derailleur to its outermost position and pull the derailleur body back with your right hand.

2. Put the chain onto the smallest sprocket. Then, insert the wheel into the frame dropouts and pull it all the way into the dropouts. The axle nut washers should not be on the outside, between the frame and the axle nuts.

3. Tighten the axle nuts securely, using a six inch adjustable wrench or a 15 mm box wrench.

4. Push the rear derailleur back into position.

5. Close the brake; then spin the wheel to make sure that it is centered in the frame and clears the brake shoes.

SEATPOST QUICK RELEASE

Many bikes are equipped with quick-release seatpost binders. While a quick release looks like a long bolt with a lever on one end and a nut on the other, in fact the quick release uses a cam action to firmly clamp the seatpost.

⚠ WARNING

Riding with an improperly tightened seatpost can allow the saddle to turn or move and cause you to lose control and fall. Therefore:

1. Ask your local bicycle specialist to help you make sure you know how to correctly clamp your seatpost.
2. Understand and apply the correct technique for clamping your seatpost quick release.
3. Before you ride the bike, first check that the seatpost is securely clamped.

Adjusting the Quick Release Mechanism

The action of the quick release cam squeezes the seat collar around the seatpost to hold the seatpost securely in place. The amount of clamping force is controlled by the tension adjusting nut. Turning the tension adjusting nut clockwise while keeping the cam lever from rotating increases clamping force; turning it counterclockwise while keeping the cam lever from rotating reduces clamping force. Less than half a turn of the tension adjusting nut can make the difference between safe clamping force and unsafe clamping force.

⚠ CAUTION

The full force of the cam action is needed to clamp the seatpost securely. Holding the nut with one hand and turning the lever like a wing nut with the other hand until everything is as tight as you can get it will not clamp the seatpost safely.

⚠ CAUTION

If you can fully close the quick release without wrapping your fingers around the seatpost for leverage, and the lever does not leave a clear imprint in the palm of your hand, the tension is insufficient. Open the lever; turn the tension adjusting nut clockwise a quarter turn; then try again.

BRAKES

NOTE: For most effective braking, use both brakes and apply them simultaneously.

1. How Brakes Work

It's important to your safety that you instinctively know which brake lever controls which brake on your bike. In the U.S., bikes are required to be set up with the right brake lever controlling the rear brake, and then left lever controlling the front brake. Make sure that your hands can reach and squeeze the brake levers comfortably.

The braking action of a bicycle is a function of the friction between the brake surfaces - usually the brake shoes and the wheel rim. To make sure that you have maximum friction available, keep your wheel rims and brake shoes clean and free of lubricants, waxes or polishes.

Brakes are designed to control your speed, not just to stop the bike. Maximum braking force for each wheel occurs at the point just before the wheel "locks up" (stops rotating) and starts to skid. Once the tire skids, you actually lose most of your stopping force and all directional control. You need to practice slowing and stopping smoothly without locking up a wheel. The technique is called progressive brake modulation. Instead of jerking the brake lever to the position where you think you'll generate appropriate braking force, squeeze the lever, progressively increasing the braking force. If you feel the wheel begin to lock up, release pressure just a little to keep the wheel rotating just short of lockup. It's important to develop a feel for the amount of brake lever pressure required for each wheel at different speeds and on different surfaces. To better understand this, experiment a little by walking your bike and applying different amounts of pressure to each brake lever, until the wheel locks.

⚠ WARNING

Some bicycle brakes, such as linear-pull and disk brakes, are extremely powerful. You should take extra care in becoming familiar with these brakes and exercise particular care when using them. Applying these brakes too hard or too suddenly can lock up a wheel, which could cause you to lose control and fall.

⚠ WARNING

Sudden or excessive application of the front brake may pitch the rider over the handlebars, causing serious injury or death.

When you apply one or both brakes, the bike begins to slow, but your body wants to continue at the speed at which it was going. This causes a transfer of weight to the front wheel (or, under heavy braking, around the front wheel hub, which could send you flying over the handlebars). A wheel with more weight on it will accept greater brake pressure before lockup; a wheel with less weight will lock up with less brake pressure. So, as you apply brakes and your weight shifts forward, you need to shift your body toward the rear of the bike, to transfer weight back onto the rear wheel; and at the same time, you need to both decrease rear braking and increase front braking force. This is even more important on steep descents, because descents shift weight forward. The keys to effective speed control and safe stopping are controlling wheel lockup and weight transfer. Practice braking and weight transfer techniques where there is no traffic or other hazards and distractions. Everything changes when you ride on loose surfaces or in wet weather. Tire adhesion reduces, so the wheels have less cornering and braking traction and can lock up with less brake force. Moisture or dirt on the brake shoes reduces their ability to grip. The way to maintain control on loose or wet surfaces is to go more slowly to begin with.

2. Adjusting your Brakes
If either brake lever on your bike fails the Mechanical Safety Check you can restore brake lever travel by turning the brake cable adjusting barrel counterclockwise, then lock the adjustment in by turning the barrel's lock nut clockwise as far as it will go. If the lever still fails the Mechanical Safety Check, or if you have any question about whether your brakes are working properly have your brakes checked by a bicycle specialist.

⚠ CAUTION
The brake cable adjusting barrels are for minor adjustments only. For major adjustments, see the appropriate section in the manual for the type of brakes on your bicycle.

SHIFTING
Your multi-speed bicycle will have a derailleur drivetrain, an internal gear hub drivetrain or, in some cases, a combination of the two.

1. Why all those gears?
You will get the greatest fitness benefit, produce the greatest sustained power and have the greatest endurance if you learn to spin the pedals at high revolutions per minute (called cadence) against low resistance. You will get the least fitness benefit and have the least endurance by pushing hard on the pedals against heavy resistance. The purpose of having multiple gears on a bicycle is to let you choose the gear that allows you to maintain your optimum cadence under the widest range of riding conditions. Depending on your fitness level and experience (the more fit, the higher the cadence), optimum cadence is between 60 and 90 pedal revolutions per minute.

2. Shifting a Derailleur Drivetrain

If your bicycle has a derailleur drivetrain, the gear-changing mechanism will consist of:

- a rear sprocket cluster, called a freewheel or freewheel cassette
- a rear derailleur
- usually a front derailleur
- one or two shifters
- one or two control cables
- one, two, or three front sprockets called chainrings
- a drive chain

The number of possible gear combinations ("speeds") is the product of multiplying the number of sprockets at the rear of the drivetrain by the number of sprockets at the front (6x2=12, 6x3=18, 7x3=21 and so on).

Shifting Gears

There are many different types of shifter mechanisms, each preferred for specific types of application because of its ergonomic, performance and price characteristics. The designers of your bike have selected the shifter design which they believe will give the best results on your bike.

The vocabulary of shifting can be pretty confusing. A downshift is a shift to a "slower" gear, one which is easier to pedal. An upshift is a shift to a "faster", harder to pedal gear. What's confusing is that what's happening at the front derailleur is the opposite of what's happening at the rear derailleur (for details, read the instructions on Shifting the Rear Derailleur and Shifting the Front Derailleur below). For example, you can select a gear which will make pedaling easier on a hill (make a downshift) in one of two ways: shift the chain down the gear "steps" to a smaller gear at the front, or up the gear "steps" to a larger gear at the rear. So, at the rear gear cluster, what is called a downshift looks like an upshift. The way to keep things straight is to remember that shifting the chain in towards the centerline of the bike is for accelerating and climbing and is called a downshift. Moving the chain out or away from the centerline of the bike is for speed and is called an upshift.

Whether upshifting or downshifting, the bicycle derailleur system design requires that the drive chain be moving forward and be under at least some tension. A derailleur will shift only if you are pedaling forward.

3. Shifting the Rear Derailleur

The rear derailleur is controlled by the right shifter. The function of the rear derailleur is to move the drive chain from one gear to another on the rear cluster, thereby changing gear drive ratios. The smaller sprockets on the gear cluster produce higher gear ratios. Pedaling in the higher gears requires greater pedaling effort, but takes you a greater distance with each revolution of the pedal cranks. The larger sprockets produce lower gear ratios. Using them requires less pedaling effort, but takes you a shorter distance with each pedal crank revolution. Moving the chain from a smaller sprocket of the gear cluster to a larger sprocket results in a downshift. Moving the chain from a larger sprocket to a smaller sprocket results in an upshift. In order for the derailleur to disengage the chain from one sprocket and move it onto another, the chain must be moving forward (i.e. the rider must be pedaling forward).

4. Shifting the Front Derailleur

The front derailleur, which is controlled by the left shifter, shifts the chain between the larger and smaller chainrings. Shifting the chain onto a smaller chainring makes pedaling easier (a downshift). Shifting to a larger chainring makes pedaling harder (an upshift). Which gear should I be in? The combination of largest rear, smallest front gears is for the steepest hills. The smallest rear, largest front combination is for the greatest speed. It is not necessary to shift gears in sequence. Instead, find the “starting gear” which is right for your level of ability - a gear which is hard enough for a quick acceleration but easy enough to let you start from a stop without wobbling and experiment with upshifting and downshifting to get a feel for the different gear combinations. At first, practice shifting where there are no obstacles, hazards or other traffic, until you’ve built up your confidence. Once you’ve learned the basics, experience will teach you which gear is appropriate for which condition, and practice will help you shift smoothly and at precisely the optimum moment.

5. Shifting an Internal Gear Hub Drivetrain

If your bicycle has an internal gear hub drivetrain, the gear changing mechanism will consist of:

- a 3, 5, 7 or possibly 12 speed internal gear hub
- one, or sometimes two shifters
- one or two control cables
- one front sprockets called chainrings
- a drive chain

A. Shifting internal gear hub gears

Shifting with an internal gear hub drivetrain is simply a matter of moving the shifter to the indicated position for the desires gear. After you have moved the shifter to the gear position of your choice, ease the pressure on the pedals for an instant to allow the hub to complete the shift.

B. Which gear should I be in?

The numerically lowest gear (1) is for the steepest hills. The numerically largest gear (3, 5, 7 or 12, depending on the number of speeds on your hub) is for the greatest speed. Shifting from an easier, “slower” gear is called a downshift. It is not necessary to shift gears in sequence. Instead, find the starting gear” for the conditions - a gear which is hard enough for quick acceleration but easy enough to let you start from a stop without wobbling - and experiment with upshifting and downshifting to get a feel for the different gears. At first, practice shifting where there are no obstacles, hazards or other traffic, until you’ve built up your confidence. Once you’ve learned the basics, experience will teach you which gear is appropriate for which condition, and practice will help you shift smoothly and at precisely the optimum moment.

TIRES AND TUBES

Tires
Bicycle tires are available in many designs and specifications, ranging from general purpose designs to tires designed to perform best under very specific weather or terrain conditions. Your bicycle has been equipped with tires which the bike's manufacturer felt were the best balance of performance and value for the use for which the bike was intended. If, once gained experience with your new bike, you feel that a different tire might better suit your riding needs, your local bicycle specialist can help you select the most appropriate design.

The size, pressure rating, and on some high performance tires the specific recommended use, are marked on the sidewall of the tire. The part of this information which is most important to you is Tire Pressure.

! WARNING
Never inflate a tire beyond the maximum pressure marked on the tire's sidewall. Exceeding the recommended maximum pressure may blow the tire off the rim, which could cause damage to the bike and injury to the rider and bystanders. The best way to inflate a bicycle tire to the correct pressure is with a bicycle pump. Your local bicycle specialist can help you select an appropriate pump.

! CAUTION
Gas station air hoses move a large volume of air very rapidly, and will raise the pressure in your tire very rapidly. To avoid overflation when using a gas station air hose, put air into your tire in short, spaced bursts.

Tire pressure is given either as maximum pressure or as a pressure range. How a tire performs under different terrain or weather conditions depends largely on tire pressure. Inflating the tire to near its maximum recommended pressure gives the lowest rolling resistance, but also produces the harshest ride. High pressures work best on smooth, dry pavement. Very low pressures, at the bottom of the recommended pressure range, give the best performance on smooth, slick terrain such as hard packed clay, and on deep, loose surfaces such as deep, dry sand. Tire pressure that is too low for your weight and the riding conditions can cause a puncture of the tube by allowing the tire to deform sufficiently to pinch the inner tube between the rim and the riding surface. Some special high performance tires have unidirectional treads: their tread pattern is designed to work better in one direction than in the other. The sidewall marking of a unidirectional tire will have an arrow showing the correct rotation direction. If your bike has unidirectional tires, be sure that they are mounted to rotate in the correct direction. **NOTE: Some tires may need to be brought up to pressure every week or two.**

⚠ WARNING

Pencil type automotive tire gauges and gas station air hose pressure settings can be inaccurate and should not be relied upon for consistent, accurate pressure readings. Instead, use a high quality dial gauge.

Tire Valves

The tire valve allows air to enter the tire's inner tube under pressure, but doesn't let it back out unless you want it to. The tire valve on your bicycle is like the valve on a car tire. To inflate the tire/tube, remove the dust cap and push the air hose or pump fitting onto the end of the valve stem. To let air out of the valve, depress the pin in the end of the valve stem with the end of a key or other appropriate object.

The Schraeder is like the valve on a car tire. To inflate a Schraeder valve tube, remove the valve cap and push the air hose or pump fitting onto the end of the valve stem. To let air out of a Schraeder valve, depress the pin in the end of the valve stem with the end of a key or other appropriate object.

The Presta valve has a narrower diameter and is only found on bicycle tires. To inflate a Presta valve tube using a Presta headed bicycle pump, remove the valve cap; unscrew (counterclockwise) the valve stem lock nut; and push down on the valve stem to free it up. Then push the pump head onto the valve head and inflate. To inflate a Presta valve with a gas station air hose, you'll need a Presta adapter (available at your local bike shop) which screws onto the valve stem once you've freed up the valve. The adapter fits the end of the air hose fitting. Close the valve after inflation. To let air out of a Presta valve, open up the valve stem lock nut and depress the valve stem.

BICYCLE SUSPENSION

Some Mountain Bikes come equipped with suspension systems which are designed to smooth out some of the shocks encountered in riding. Suspension can increase the handling capabilities and comfort of your bicycle. This enhanced capability may allow you to ride faster, but you must not confuse the enhanced capabilities of the bicycle with your own capabilities as a rider. Increasing your skill will take time and practice. Proceed carefully until you are sure you are competent to handle the full capabilities of your bike. Never ride at a speed or on terrain which is not suitable for your personal riding skill and experience. Always proceed cautiously in areas where you are not familiar with the terrain. If you exceed your limitation, serious injury or death could occur.

! WARNING

If your bike has suspension, the increased speed you may develop also increases your risk. When braking, the front of a suspension bike dips. You could lose control and fall if your skill is not up to handling this system. Get to know how to handle your suspension system safely before trying any downhill or very fast mountain biking.

! CAUTION

Changing suspension adjustment can change the handling and braking characteristics of your bicycle. Always check for changes in the handling and braking characteristics of the bicycle after a suspension adjustment by taking a careful test ride in a hazard free area.

! WARNING

Failure to maintain, check and properly adjust the suspension system may result in suspension malfunction, which may cause you to lose control and fall.

! CAUTION

Not all bicycles can be safely retrofitted with some types of suspension systems. Before retrofitting a bicycle with any suspension, check with the bicycle's manufacturer to make sure that what you want to do is compatible with the bicycle design.

If you want to learn to do major service and repair work on your bike:
• Ask your local bicycle repair shop to recommend a book on bicycle repair.
• Ask your local bicycle repair shop about the availability of bicycle repair courses in your area.
We recommend that you ask your local bicycle repair shop to check the quality of your work the first time you work on something and before you ride the bike after a service or home repair, just to make sure that you did everything correctly. Since that will require the time of a mechanic, there may be a modest charge for this service.

WARNING

Many bicycle service and repair tasks require special knowledge and tools. Do not begin any adjustments or service on your bicycle until you have learned to properly complete them. Improper adjustment or service may result in damage to the bicycle or in an accident which can cause serious injury or death.

WARNING

Technological advances have made bicycles and bicycle components more complex, and the pace of innovation is increasing. It is impossible for this manual to provide all the information required to properly repair and/or maintain your bicycle. In order to help minimize the chances of an accident and possible injury, it is critical that you have any repair or maintenance which is not specifically described in this manual performed by your local bicycle repair shop. Equally important is that your individual maintenance requirements will be determined by everything from your riding style to geographic location.

SCHEDULE 1 - LUBRICATION

Lubrication should be done at your local bike shop where the “How to” calls for the area to be disassembled, and the information provided in this manual about that service is for only those who are comfortable doing such complex maintenance. However, some service and maintenance can and should be performed by the owner, and require no special tools or knowledge beyond what is presented in this manual.

SERVICING

The following are examples of the type of service you should perform yourself. All other service, maintenance and repair should be performed in a properly equipped facility by a qualified bicycle mechanic using the correct tools and procedures specified by the manufacturer.

1. Break-in Period: Your bike will last longer and work better if you break it in before riding it hard. Control cables and wheel spokes may stretch or "seat" when a new bike is first used and may require readjustment by your local bicycle repair shop. Your Pre Ride Safety Check (pages 16-17) will help you identify other things that need readjustment.

2. Before every ride: Pre Ride Safety Checks (see pages 16-17).

3. After every long or hard ride; if the bike has been exposed to water or grit; or at least every 100 miles: Clean the bike and lightly lubricate the chain's rollers with a good quality bicycle chain lubricant. Wipe off excess lubricant with a lint free cloth. Lubrication is a function of climate. Talk to your dealer about the best lubricants and the recommended lubrication frequency for your area. Avoid contaminating the rims with lubricant!

4. After every long or hard ride or after every 10 to 20 hours of riding:

- Squeeze the front brake and rock the bike forward and back. Everything feel solid? If you feel a clunk with each forward or backward movement of the bike, you probably have a loose headset. Have your dealer check it.
- Lift the front wheel off the ground and swing it from side to side. Feel smooth? If you feel any binding or roughness in the steering, you may have a tight headset. Have your dealer check it.
- Grab one pedal and rock it toward and away from the centerline of the bike; then do the same with the other pedal. Anything feel loose? If so, have your dealer check it.
- Take a look at the brake pads. Starting to look worn or not hitting the wheel rim squarely? Time to have the dealer adjust or replace them.
- Carefully check the control cables and cable housings. Look if any rust, kinks, or fraying has occurred and if so, have your dealer replace them.
- Squeeze each adjoining pair of spokes on either side of each wheel between your thumb and index finger. Do they all feel the same? If any feel loose, have your dealer check the wheel for tension and trueness.
- Check the tires for excess wear, cuts or bruises. Have your dealer replace them if necessary.
- Check the wheel rims for excess wear, dings or dents and scratches. Consult your dealer if you see any rim damage.
- Check to make sure that all parts and accessories are still secure, and tighten any which are not, including but not limited to pedals, crank arms, chains, seatpost, and handlebars.
- Check the frame, particularly in the area around all tube joints; the handlebars; the stem; and the seatpost for any deep scratches, cranks or discoloration. These can be signs of stress-caused fatigue and indicate that a part is at the end of it's useful life and needs to be replaced.

SCHEDULE 2 - SERVICE CHECKLIST

Frequency	Component	Lubricant	How to Lubricate
Weekly	Chain	Chain Lube or Light Oil	Brush on or Squirt
	Derailleur Wheels	Chain Lube or Light Oil	Brush on or Squirt
	Derailleurs	Oil	Oil Can
	Brake Calipers	Oil	3 Drops from Oil Can
	Brake Levers	Oil	2 Drops from Oil Can
Monthly	Shift Levers	Lithium Based Grease	Disassemble
Every Six Months	Freewheel	Oil	2 Squirts from Oil Can
	Brake Cables	Lithium Based Grease	Disassemble
Yearly	Bottom Bracket	Lithium Based Grease	Disassemble
	Pedals	Lithium Based Grease	Disassemble
	Derailleur Cables	Lithium Based Grease	Disassemble
	Wheel Bearings	Lithium Based Grease	Disassemble
	Headset	Lithium Based Grease	Disassemble
	Seat Pillar	Lithium Based Grease	Disassemble

NOTE: The frequency of maintenance should increase with lots of usage and use in wet or dusty conditions. Do not over lubricate - remove excess lube to prevent dirt build up. Never use a degreaser to lubricate your chain (WD-40).

⚠ WARNING

Like any mechanical device, a bicycle and its components are subject to wear and stress. Different materials and mechanisms wear or fatigue from stress at different rates and have different life cycles. If a component's life cycle is exceeded, the component can suddenly and catastrophically fail, causing serious injury or death to the rider. Signs of stress - caused fatigue indicate that a part is at the end of it's useful life and needs to be replaced. While the materials and workmanship of your bicycle or of individual components may be covered by warranty for a specified period of time, this is no guarantee that the product will last the term of the warranty. Product life is often related to the kind of riding you do and to the treatment to which you submit the bicycle. The bicycle's warranty is not meant to suggest that the bicycle cannot be broken or will last forever. It only means that the bicycle is covered subject to the terms or the warranty.

WHEELS AND TIRES

Wheel Inspection

It is most important that the wheels are kept in top condition. Properly maintaining your bicycle's wheels will help braking performance and stability when riding. Be aware of the following potential problems:

- **Dirty or Greasy Rims:**

CAUTION: These can render your brakes ineffective. Do not clean them with oily or greasy materials. When cleaning, use a clean rag or wash with soapy water, rinse and air dry. Don't ride while they're wet. When lubricating your bicycle, don't get oil on the rim braking surfaces.

- **Wheels Not Straight:** Lift each wheel off the ground and spin them to see if they are crooked or out of round. If wheels are not straight, they will need to be adjusted. This is quite difficult and is best left to a bicycle specialist.

CAUTION: Wheels must be true for rim brakes to work effectively. Wheel truing is a skill which requires special tools and experience. Do not attempt to true a wheel unless you have the knowledge, experience and tools needed to do the job correctly.

- **Broken or Loose Spokes:** Check that all spokes are tight and that none are missing or damaged.

CAUTION: Such damage can result in severe instability and possibly an accident if not corrected. Again, spoke repairs are best handled by a specialist.

- **Loose Hub Bearings:** Lift each wheel off the ground and try to move the wheel from side to side.

CAUTION: If there is movement between the axle and the hub, do not ride the bicycle. Adjustment is required.

- **Axle Nuts:** Check that these are tight before each ride.

CAUTION: It is very important to check the front wheel connection to the bicycle. Failure to properly tighten may cause the front wheel to dislodge.

TIRE INSPECTION

Tires must be maintained properly to ensure road holding and stability. Check the following areas:

Inflation: Ensure tires are inflated to the pressure indicated on the tire sidewalls. It is better to use a tire gauge and a hand pump than a service station pump.

CAUTION: If inflating tires with a service station pump, take care that sudden over inflation does not cause tire to blow out.

Bead Seating: When inflating or refitting tire, make sure that the bead is properly seated in the rim.

Tread: Check that the tread shows no signs of excessive wear or flat spots, and that there are no cuts or other damage.

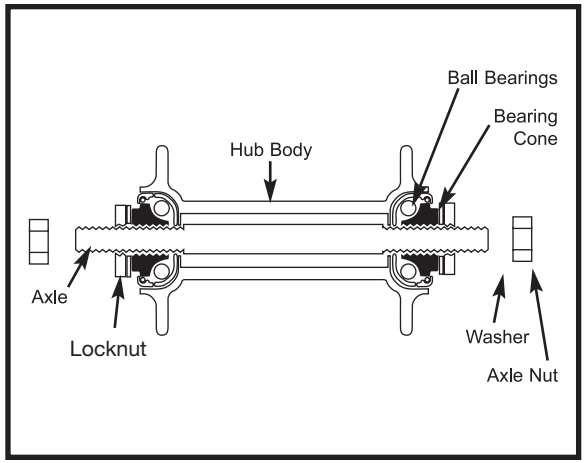
CAUTION: Excessively worn or damaged tires should be replaced.

Valves: Make sure valve caps are fitted and that valves are free from dirt. A slow leak caused by the entry of the dirt can lead to a flat tire, and possibly a dangerous situation.

RECOMMENDED TIRE PRESSURES:

The recommended pressure molded on the sidewall of your bicycle tires should match the following chart. Use this as a general guide.

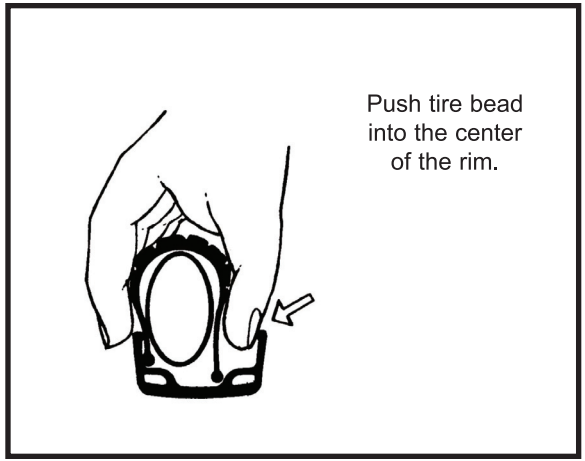
BMX	35 - 50 psi
MTB	40 - 65 psi
Road Touring	70 - 90 psi
Hybrid/Crossbike	60 - 100 psi
Road Racing	110 - 125 psi



HUB BEARING ADJUSTMENT

When checked, the hub bearings of either wheel will require adjustment if there is any more than slight side play.

1. Check to make sure neither locknut is loose.
2. To adjust, remove wheel from bicycle and loosen the locknut on one side of the hub while holding the bearing cone on the same side with the bicycle cone wrench or flat, thin open end wrench.
3. Rotate the adjusting cone as needed to eliminate free play.
4. Retighten the locknut while holding the adjusting cone in position.
5. Recheck that the wheel can turn freely without excessive side play.

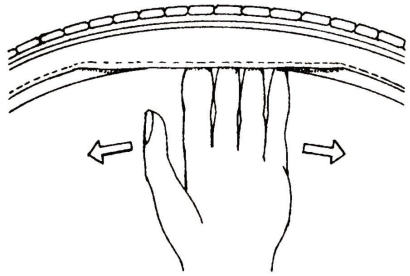


HOW TO FIX A FLAT TIRE

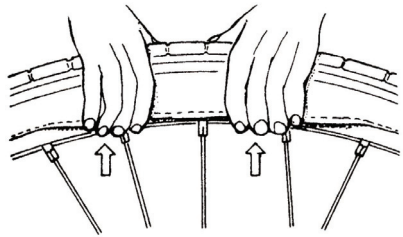
If you need to repair a tire, follow these steps:

1. Remove the wheel from the bicycle.
2. Deflate the tire completely via the valve.
3. Press one side of the tire bead up over the edge of the rim.
   NOTE: Use tire levers, not a screwdriver, otherwise you may damage the rim.
4. Remove the tube, leaving the tire on the rim.
5. Locate the leaks and patch using a tube repair kit, carefully following the instructions, or replace the tube.
   NOTE: Ensure that the replacement tube size matches the size stated on the tire sidewall and that the valve is the correct type of your bicycle.

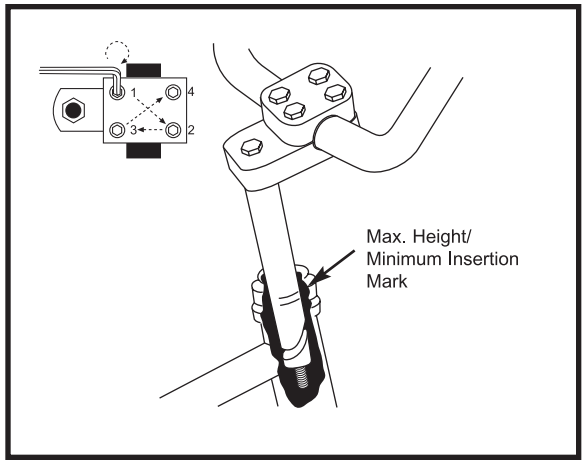
6. Match the position of the leak in the tube with the tire to locate the possible cause and mark the location on the tire.
7. Remove the tire completely and inspect for a nail, glass, etc. and remove if located. Also inspect the inside of the rim to ensure there are no protruding spokes, rust or other potential causes. Replace the rim tape which covers the spoke ends, if damaged.
8. Remount one side of the tire onto the rim.
9. Using a hand pump, inflate the tube just enough to give it some shape.
10. Place the valve stem through the hole in the rim and work the tube into the tire. **NOTE: Do not let it twist.**
11. Using your hands only, remount the other side of the tire by pushing the edge toward the center of the rim. Start on ether side of the valve and work around the rim.
12. Before the tire is completely mounted, push the valve up into the rim to make sure the tire can sit squarely in position.
13. Fit the rest of the tire, rolling the last, most difficult part on using your thumbs. **NOTE: Avoid using tire levers as these can easily puncture the tube or damage the tire.**
14. Check that the tube is not caught between the rim and the tire bead at any point.
15. Using a hand pump, inflate the tube until the tire begins to take shape, and check that the tire bead is evenly seated all the way around the rim. When properly seated, fully inflate the tire to the pressure marked on the sidewall. Use a tire air pressure gauge to check.
16. Replace the wheel into the frame checking that all gears and brakes are properly adjusted.



Remove tire bead from the rim.



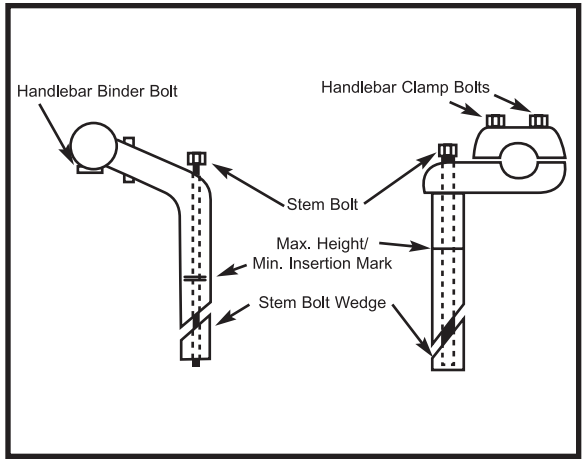
Pull tire back onto the rim.



HANDLEBARS AND STEM

Handlebar Stem

The handlebar stem fits into the steering column and is held firm by the action of a binder bolt and expander wedge which, when tightened, binds with the inside of the fork steerer tube. When removing the stem, loosen the stem wedge bolt two or three turns, then give it a tap to loosen the wedge inside. Lubricate by first wiping off any old grease and grime, then applying a thin film of grease to the part, including the wedge, that will be inserted into the frame. The height of the handlebar can be adjusted to suit your comfort preference. If the stem is removed from the steering column, you will notice a mark about 65 mm up from the bottom with the words “Max. Height” or “Minimum Insertion”.



! WARNING

A quill stem’s Minimum Insertion Mark must not be visible above the top of the headset. If the stem is extended beyond the Minimum Insertion Mark the stem may break or damage the fork’s steerer tube, which could cause you to lose control and fall.

When refitting the stem, make sure the handlebars are correctly aligned and tightened using the appropriate hex wrench or Allen key.

Do not over tighten.

Test the security of the handlebar within the stem, and the stem within the fork steerer tube, by clamping the front wheel between your knees and trying to move the handlebar up and down, and from side to side. The handlebar should not move when applying turning pressure.

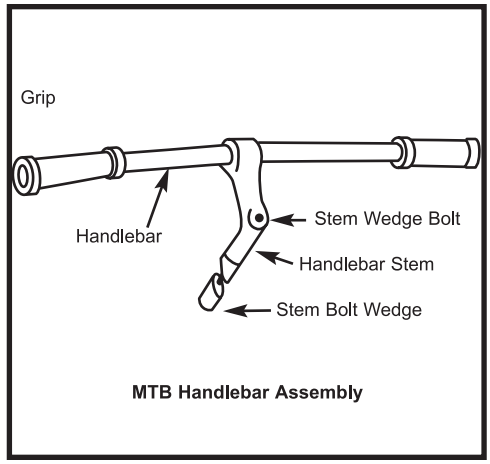
HANDLEBARS

The exact positioning of the handlebar is a matter of personal comfort. For MTB bicycles, the bar should be approximately horizontal, with the ends pointing back and slightly up. On BMX bicycles, the handlebar should remain in an approximately upright position but can be angled back or forward slightly for comfort. On MTB and racing style bicycles, the handlebar is usually tightened in the stem by a single Allen key bolt or hexagonal bolt. On BMX style bicycles there may be four clamping bolts.

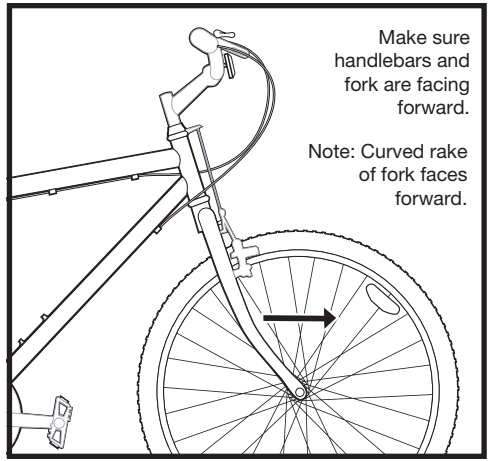
Make sure, when setting the handlebars in the fork, that the curved rake of the fork is angled to the front of the bicycle. Please note that if you need to replace the forks in your bicycle at any time, the replacement forks must have the same rake and the same tube inner diameter as those originally fitted to the bicycle.

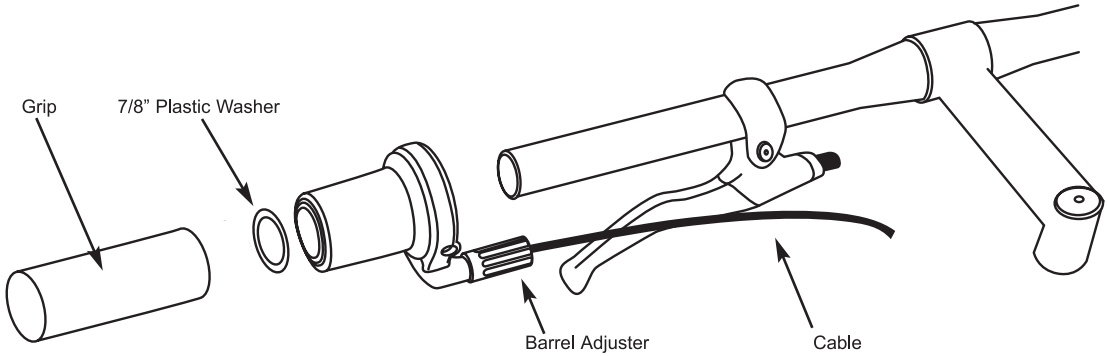
! WARNING

A loose stem bolt can cause a loss of steering control and result in serious injury or death. The stem must be tight enough for the wedge nut to bite into the inner surface of the steer tube.



MTB Handlebar Assembly





GRIP SHIFTERS

Grip Shift - Installation

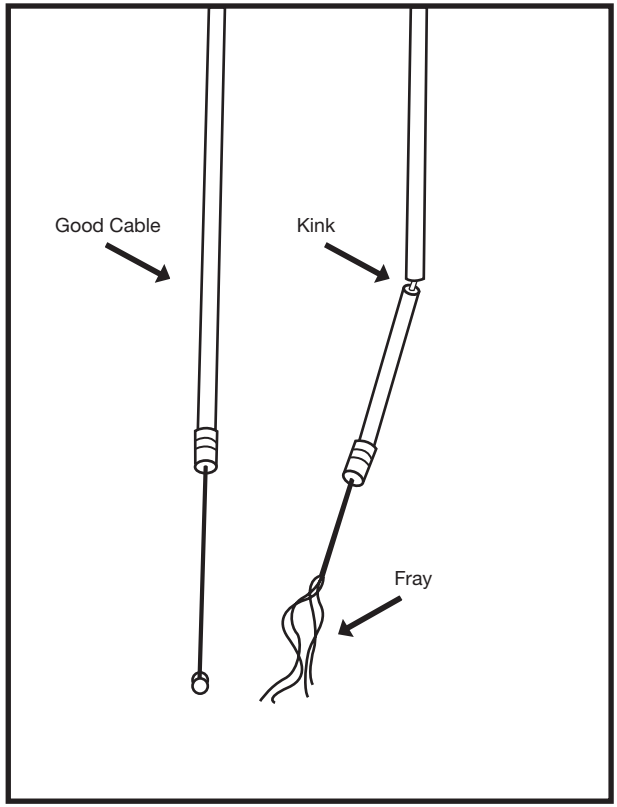
1. Slide front Grip Shift assembly over left side of handlebar leaving proper clearance for handlebar grip. If necessary, move the brake lever to accommodate Grip Shift and handlebar grip.
2. Rotate assembly until cable exits beneath brake lever with adequate clearance for brake lever movement.
3. Firmly tighten recessed clamp screw. Installation torque should be 20 in/lbs.
4. Slide the 7/8” plastic washer over handlebar. The washer prevents the grip from interfering with Grip Shift rotation.
5. Slide handlebar grip over handlebar. Thread the cable inner wire through cable housings and frame, and attach to derailleur. Make sure that the cable is in the V groove at the derailleur attachment bolt. If trimming the cable housing is necessary, be sure to replace the housing end cap.
6. Adjust indexing.
7. Slide rear Grip Shift over right side of handlebar and repeat steps 2 - 6.
8. Actuate front and rear brake levers to be certain of proper operation. If Grip Shift interferes with brake lever movement, rotate brake lever or Grip Shift. **Check for proper brake operation again.**

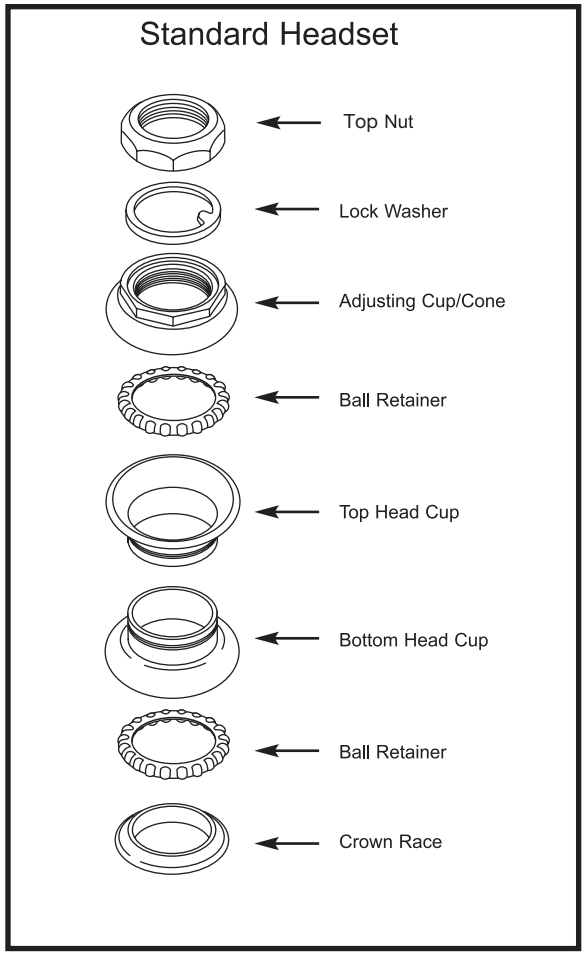
CABLES AND CABLE HOUSING

Cables and housing are one of the most overlooked parts on the bicycle. The first indication that your cables and housing need to be replaced is an increased amount of pressure needed to operate the brakes or shifters. Before every ride, check that there are no kinks or frays in the cables and housing. Check that the brake cables are correctly routed and not wrapped around the stem or frame in a manner that prevents smooth operation or hampers control of the bicycle. Also check that the housing is seated properly into each cable stop of the bicycle. It is recommended that the cables and housing are replaced at least every riding season to prolong the life of your bicycle.

! WARNING

Always check the brake cable routing to ensure smooth and free application of the brakes. Cables that are kinked, frayed or otherwise damaged, or cables that are wrapped around the stem or frame may affect braking power or cause unintended sudden stops and loss of control, serious injury or death.





HEADSET

Inspection

The headset bearing adjustment should be checked every month. This is important as it is the headset which locks the fork into the frame, and if loose, can cause damage or result in an accident. While standing over the frame top tube with both feet on the ground, apply the front brake firmly and rock the bicycle back and forth; if you detect any looseness in the headset, it will need adjustment. Check that the headset is not over tightened by slowly rotating the fork to the right and left. If the fork tends to stick or bind at any point, the bearings are too tight.

NOTE: If your bike is equipped with a threadless headset, please see a qualified specialist for repairs and adjustments.

Adjustment

Loosen the headset top nut and lock washer or remove them completely along with the reflector bracket, if fitted. Turn the adjusting cup clockwise until finger tight. Replace the lock washer or reflector bracket and retighten the top nut using suitable wrench.

NOTE: Do not over tighten or bearing damage will occur.

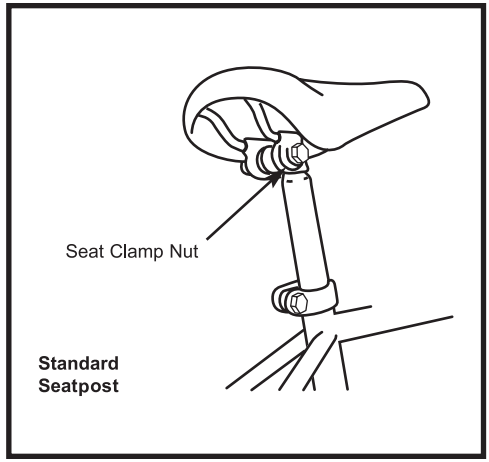
! CAUTION

Always make sure that the headset is properly adjusted and that the headset locknut is fully tightened before riding.

! WARNING

Over tightening the stem bolt or headset assembly may cause damage to the bicycle and/or injury to the rider.

SADDLE AND SEATPOST



Inspection

The seat fixing bolt and the seatpost binder bolt should be checked for tightness and adjustment every month. On removing the seatpost from the frame, you will notice a mark about 65 mm up from the bottom with the words “Max. Height” or “Minimum Insertion”.

! WARNING

Under no circumstance should the seatpost project from the frame beyond its “Minimum Insertion” or “Maximum Extension” mark. If your seatpost projects from the frame beyond these markings, the seatpost or frame may break, which could cause you to lose control and fall. After any saddle adjustment, be sure to tighten the saddle adjusting mechanism properly before riding. A loose saddle clamp or seatpost binder can cause damage to the bicycle or can cause you to lose control and fall. Periodically check to make sure that the saddle adjusting mechanism is properly tightened.

Lubrication

Remove the seatpost from the frame and wipe off any grease, rust or dirt. Then apply a thin film of new grease to the part that will be inserted into the frame. Reinsert, adjust and tighten the seatpost in the frame.

SADDLE ADJUSTMENT

The seat can be adjusted in height, angle and distance from the handlebars to suit the individual rider. Saddle angle is a matter of personal preference but the most comfortable position will usually be found when the top of the seat is almost parallel to the ground, or slightly raised at the front.

The saddle can also be adjusted by sliding it forward or back along the mounting rails to obtain the most comfortable reach to the handlebars. When fitting, position the seatpost into the clamp under the seat and place it in the frame without tightening. Adjust it to the desired angle and position, and tighten the clamping mechanism securely.

Note that the type of binder bolt may be either a hexagonal bolt, an Allen head bolt, or a quick release mechanism. Test the security by grasping the seat and trying to turn it sideways. If it moves, you will need to further tighten the binder bolt.

NOTE: Remember that the Minimum Insertion Mark must remain inside the frame assembly.

! WARNING

The seatpost must be inserted so that the Minimum Insertion Mark cannot be seen. The quick release mechanism must be tightened securely to prevent a sudden shift of the seat when riding. Failure to do this may cause loss of bicycle control.

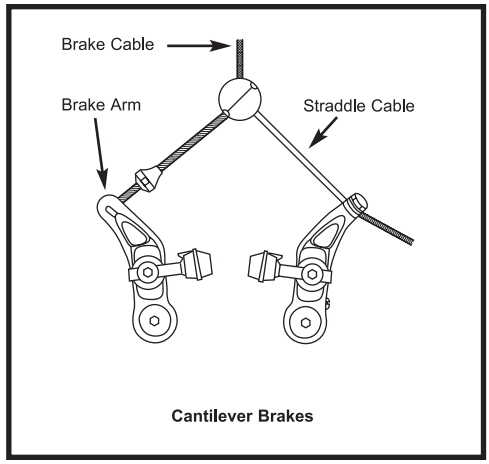
BRAKES

The correct adjustment and operation of your bicycle's brakes is extremely important for safe operation. Brakes should be checked for effective operation before every ride. Frequent checking of adjustment is necessary as the control cables will stretch and the brake pads will become worn with use.

⚠ WARNING

Never ride a bicycle unless the brakes are functioning properly. The inability to stop can cause lose of control, serious injury or death.

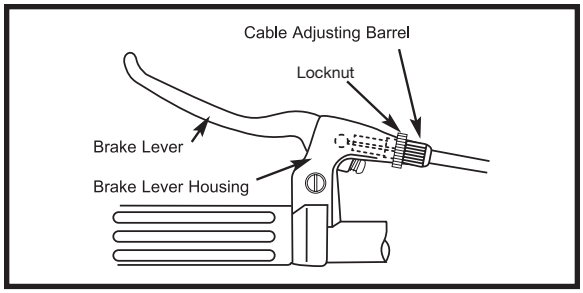
There are three types of hand operated bicycle brakes in common use: sidepull brakes, cantilever brakes, and V-brakes (or Direct Pull brakes). All brakes utilize a handlebar mounted lever which controls a cable to operate the brakes. Sidepull brakes and V-brakes use two brake pivot arms, each mounted on separate pivots on either side of the frame/fork.

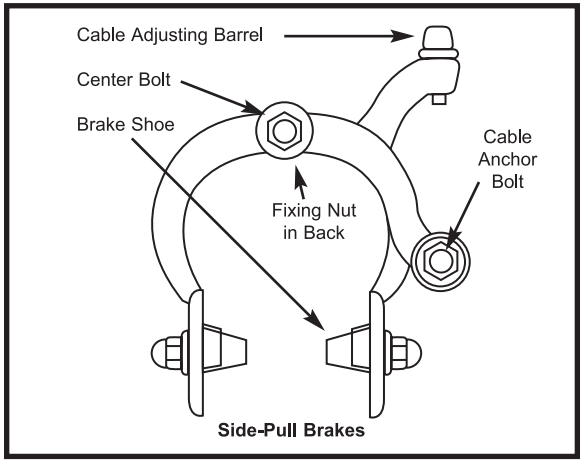


Cantilever Brakes

Inspection

Brake levers should be checked for tightness at least every three months. They should be set in a comfortable position within easy reach of the rider's hands, and must not be able to move on the handlebar. Some brake levers make use of a reach adjustment screw, which can be altered to the distance between the handlebar grip and the lever, as required. When making adjustments with the cable adjusting barrel attached to the brake lever, it is recommended that the corresponding slots on the brake lever, cable adjusting barrel and lock nut not be aligned. The brake pads should be checked for correct positioning and tightness before every ride, and the various bolts and nuts at least every three months. Squeeze each brake lever to make sure they operate freely and that the brake pads press hard enough on the rims to stop the bike. There should be about 1 mm - 2 mm clearance between each pad and the rim when the brakes are not applied. The brake pads must be properly centered for maximum contact with the rim. Replace the brake pads if they are over worn so that the grooves or pattern cannot be seen. The brake cable wires should be checked for kinks, rust, broken strands or frayed ends. The outer casing should also be checked of kinks, stretched coils and other damage. If the cables are damaged, they should be replaced.





⚠ WARNING

Ensure the brake fixing nut is secured tightly. Failure to do this may cause the brake assembly to dislodge from the fork/frame.

LUBRICATION

The brake lever and brake caliper pivot points should be oiled with 2 - 3 drops of light oil at least every three months to ensure smooth operation and to reduce wear. Cables should be greased along their entire length, after removing them from their casings, at least every six months. Always grease new cables before fitting.

ADJUSTMENT - SIDEPULL CALIPERS

Minor brake adjustment can be made via the cable adjusting barrel, usually located at the upper cable arm. To adjust, squeeze the brake pads against the rim, loosen the locknut and turn the adjuster. Brake pad clearance should be a maximum 2 mm from the rim. When correct, retighten the lock nut. If the pads cannot be set close enough to the rim in this manner, you may have to adjust the cable length. Screw the barrel adjuster 3/4 of the way in, squeeze the pads against the rim, undo the cable anchor bolt and apply full force to the brake lever to test, then fine tune using the barrel adjuster. If one pad is closer to the rim than the other, loosen the fixing nut at the back of the brake, apply the brake to hold it centered, and retighten the fixing nut.

⚠ CAUTION

The brake cable adjusting barrels are for minor adjustments only. For major adjustments see the appropriate section in the manual for the type of brakes on your bicycle. When making adjustments with the cable adjusting barrel attached to the brake lever, it is recommended that the corresponding slots on the brake lever, cable adjusting barrel and locknut not be aligned.

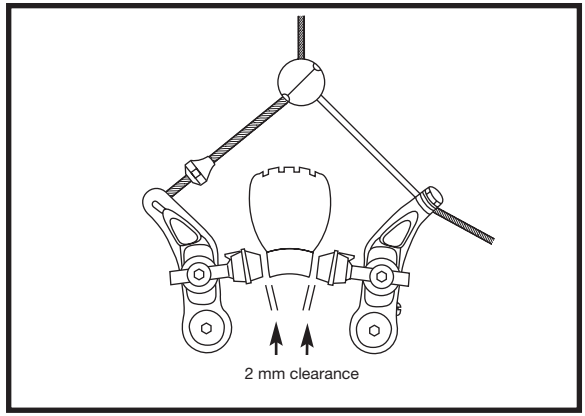
Brake pads should finally be adjusted so that the leading edge of the pad makes first contact with the rim. Some brakes have special curved washers to allow this, but on less complex models it will be necessary to apply a little force to the pad and its mounting.

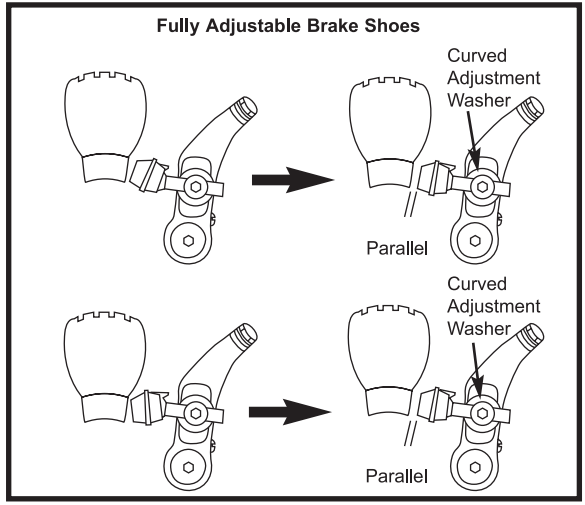
ADJUSTMENT - CANTILEVER CALIPERS

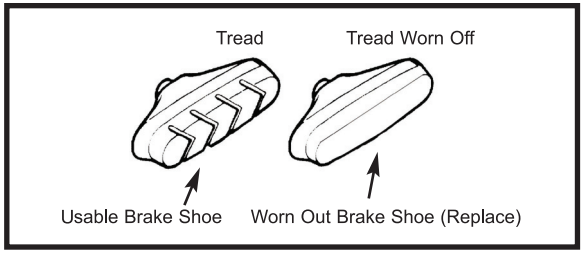
Minor brake adjustment can be made via the cable adjusting barrel, usually located on each brake lever. To adjust, squeeze the brake pads against the rim, loosen the lock nut, and turn the adjuster to pull the brake pads closer to, or spread them away from the rim as required. Brake pad clearance should be a maximum 2 mm from the rim. When correct, retighten the locknut. If the pad cannot be set close enough to the rim in this manner, you may have to adjust the length of the brake cable. To adjust the brake cable length: the main brake cable routes through a link cable to the anchor bolt on one of the brake arms. Squeeze both arms together so the brake shoes hit the rim, loosen the cable anchor bolt and pull all the slack out of the cable. Retighten the cable anchor bolt securely.

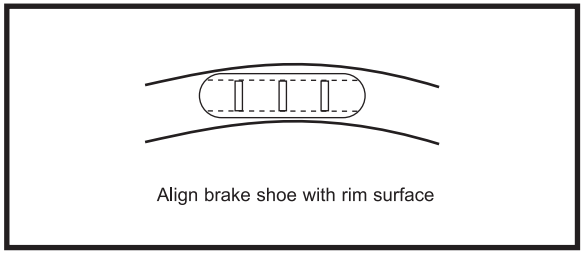
⚠ WARNING

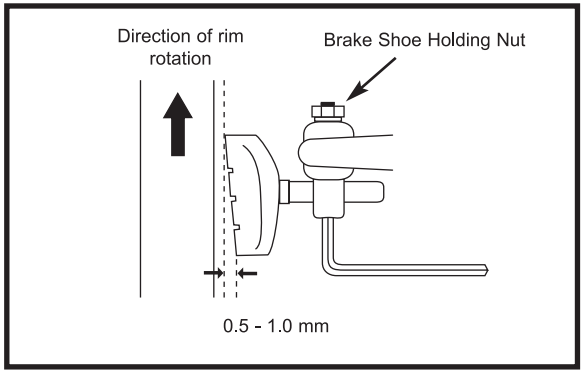
The brake cable adjusting barrels are for minor adjustments only. For major adjustments see the appropriate section in the manual for the type of brakes on your bicycle. When making adjustments with the cable adjusting barrel attached to the brake levers, it is recommended that the corresponding slots in the brake lever, cable adjusting barrel and locknut not be aligned.











Adjust the brake pad position so that it is parallel to the wheel rim and so that the leading edge makes first contact. To do this, fit an Allen key into the brake pad holding bolt, loosen the fixing nut and adjust. Move the brake pad along its mounting post to alter the distance from the rim, and move the curved adjustment washer to alter the angle of the pad.

DRIVETRAIN

The drivetrain of a bicycle refers to all parts that transmit power to the rear wheel including the pedals, chain, chainwheel, crank set, and freewheel.

PEDALS

Pedals are available in a variety of shapes, sizes and materials, and each are designed with a particular purpose in mind. Some pedals can be fitted with toe clips and straps. These help to keep the feet correctly positioned and allow the rider to exert pulling force, as well as downward pressure, on the pedals. Use of toe clips with straps requires practice to acquire the necessary skill to operate them safely.

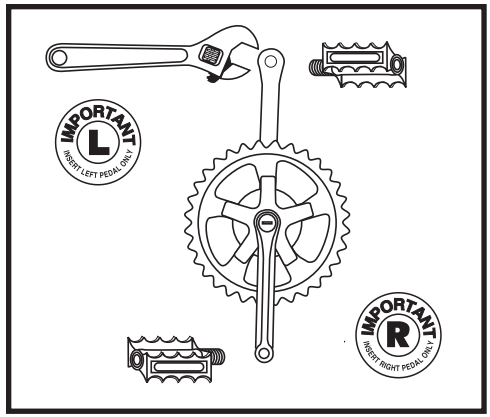
INSPECTION

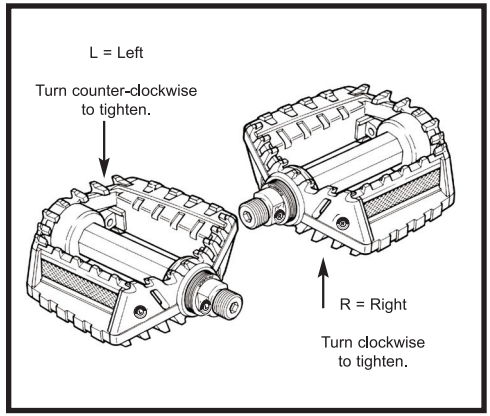
Pedals should be inspected every month, taking note of the following areas:

- Check that the pedals are tightened securely against the crank arm. If pedals are allowed to become loose, they will not only be dangerous but will also cause irreparable damage to the cranks.
- Check that pedal bearings are properly adjusted. Move the pedals up and down, and right and left, and also rotate them by hand. If you detect any looseness or roughness in the pedal bearings then adjustment, lubrication or replacement is required.
- Ensure that the front and rear pedal reflectors are clean and securely fitted.

⚠ WARNING

Never ride with loose pedals. Unless the shoulder of the pedal spindle is tight to the face of the crank arm, the pedal may back out causing serious injury or death. Make it tight so the shoulder is in clear contact with the surface of the crank arm. Before your ride always check to ensure your pedals are attached correctly. Always wear shoes.





LUBRICATION AND ADJUSTMENT

Many pedals cannot be disassembled to allow access to the internal bearings and axle. However, it is usually possible to inject a little oil onto the inside bearings, and this should be done every six months. If the pedal is the type that can be fully disassembled, then the bearings should be removed, cleaned and greased every six to twelve months. Because of the wide variety of pedal types and their internal complexity, disassembly procedures are beyond the scope of this manual and further assistance should be sought from a specialist.

ATTACHMENT

NOTE: The right and left pedals of a bicycle each have a different thread and are not interchangeable.

Never force a pedal into the incorrect crank arm. Check for the right (R, red) sticker and left (L, green) sticker on each pedal and crank arm. Match the appropriate pedals to each crank (right to right and left to left) for assembly. Insert the correct pedal into the crank arm and begin to turn thread with your fingers only. When the axle is screwed all the way in, securely tighten using a 15 mm narrow open-ended wrench so that the shoulder of the pedal spindle is securely tightened against the crank arm. If removing a pedal, remember that the right pedal axle must be turned counterclockwise (i.e. the reverse of when fitting). If replacing the original pedals with a new set, make sure the size and the axle thread is compatible with the cranks on your bicycle. Bicycles use one of two types of cranks and these use different axle threads. Your bike may be equipped with cranks that are a one piece design with no separate axle. These operate with pedals that have a 1.2 inches (12.7 mm) thread. Bikes equipped with three piece crank sets with a separate axle, left crank and right crank, use a slightly larger 9/16 inches (14 mm) thread.

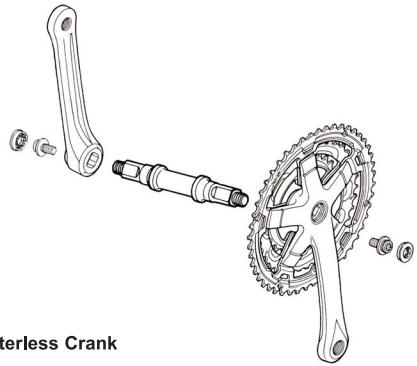
NOTE: Never try and force a pedal with the wrong thread size into a bicycle crank.

CRANK SET

The crank set refers to the bottom bracket axle and bearings, the crank arms, and chainrings. Your bike may be fitted with either a one piece crank, where the crank arms and bottom bracket are a single component, or cotterless cranks, where the crank arms bolt onto the bottom bracket axle without using old fashioned type cotterpins. The one piece system is simpler and requires less maintenance, while the cotterless system requires a little extra care.

⚠ WARNING

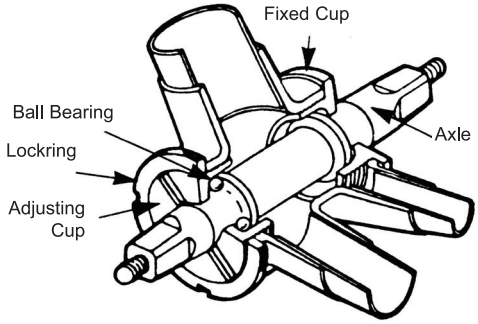
Never ride your bike if the cranks are loose. This could damage the crank arms beyond repair, and result in a loss of control, injury or death.



Cotterless Crank

Inspection

The crank set should be checked for correct adjustment and tightness every month. Cotterless crank axle nuts must be kept tight, and the bottom bracket bearings must be properly adjusted. Remove the chain and try to move the cranks from side to side with your hands. The cranks should not move on the axle, and there should be only very slight movement in the bottom bracket. Next, spin the cranks. If they don't spin freely without grinding noise, then adjustment or lubrication will be needed. Also, check that there are no broken teeth on the chainrings, and wipe off excess dirt and grease that may have built up on them.



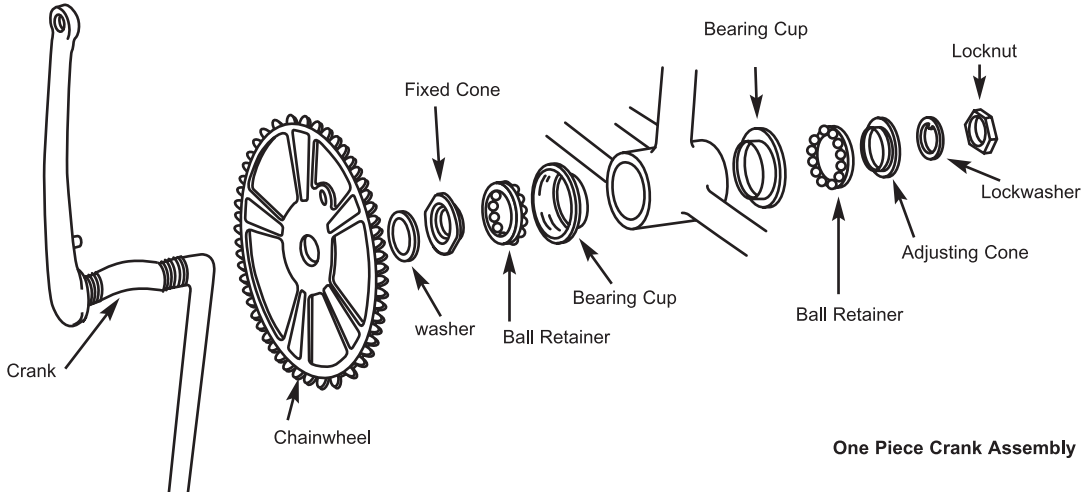
Standard Bottom Bracket Assembly (Cotterless)

LUBRICATION AND ADJUSTMENT - ONE PIECE CRANKS

To adjust the free play in a one piece type bottom bracket, loosen the locknut on the left side by turning it clockwise and tighten the adjusting cone counterclockwise using a screwdriver in the slot. When correctly adjusted, retighten the locknut counterclockwise.

To disassemble:

1. Remove the chain from the chainwheel.
2. Remove the left pedal by turning the spindle clockwise.
3. Remove the left side locknut by turning it clockwise and remove the keyed lockwasher.
4. Remove the adjusting cone by turning it clockwise with a screwdriver.
5. Remove the left ball retainer, slide the crank assembly out of the frame to the right, and remover the right ball retainer. Clean and inspect all bearing surfaces and ball retainers, and replace any damaged parts. Pack the ball bearing retainers with grease, then reassemble in the reverse of the above procedure.



One Piece Crank Assembly

LUBRICATION AND ADJUSTMENT

Cotterless Cranks

To adjust the free play in a three piece type bottom bracket, loosen the lockring on the left side by turning it counterclockwise, then turn the adjusting cup as required. Retighten the lockring taking care not to alter the cup alignment.

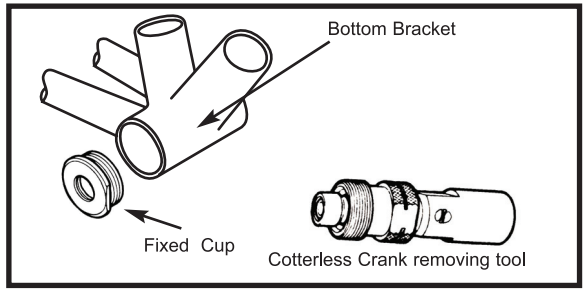
To disassemble:

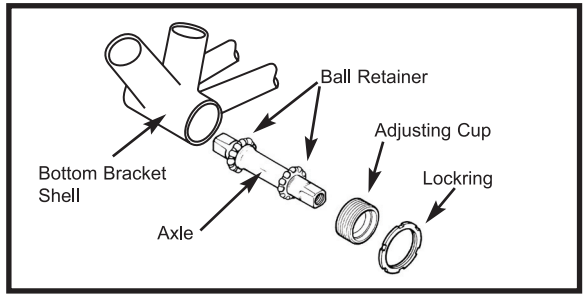
1. Remove the cranks from the axle (see bottom diagram).
2. Remove the left side lockring by turning it counterclockwise.
3. Remove the adjusting cup by turning it counterclockwise.
4. Remove the left ball retainer and slide the axle out of the frame to the left.
5. Remove the right side fixed cup by turning it counterclockwise and remove the right ball retainer. Clean and inspect all bearing surfaces and ball retainers, and replace any damaged parts. Pack the ball bearing retainers with grease, then reassemble in reverse of the above procedure.

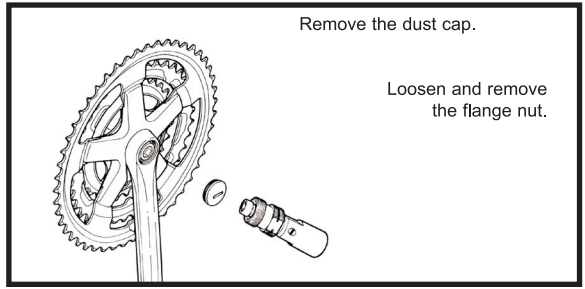
Cotterless Crank Removal

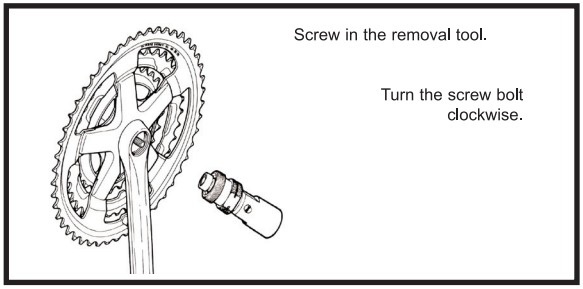
To remove cotterless cranks use the following procedure. Note that a special tool will be required.

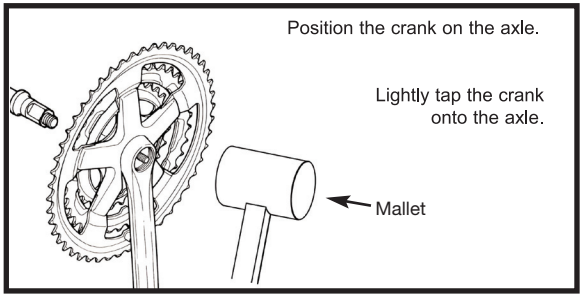
1. Remove the dust cap with a coin or screwdriver.
2. Loosen the flange nut or bolt and washer, and remove.
3. Screw the removing tool into the crank and tighten.
4. Turn the screw bolt down until the crank comes away from the axle.

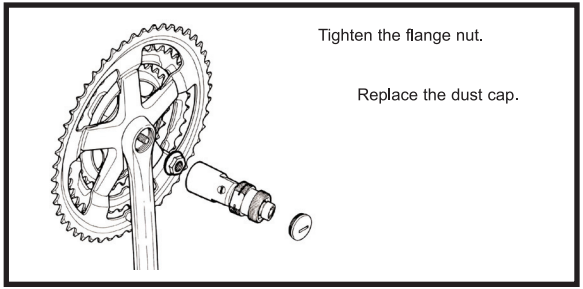












Cotterless Crank Replacement

1. Replace the crank arm onto the axle.
2. Tap the crank arm lightly with a mallet.
3. Refit the washer and tighten flange nut or bolt securely to a torque of 27Nm.
4. Replace the dust cover.

Adjustment After Use

1. Remove dust cap.
2. Tap the crank arm lightly with a mallet.
3. Retighten the flange nuts and refit the dust caps.

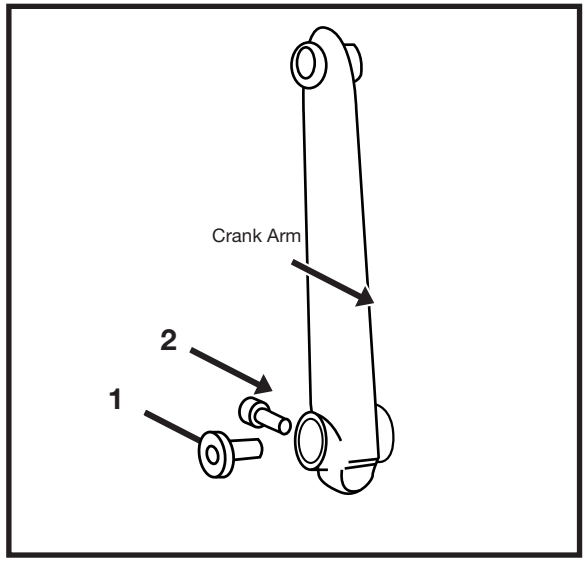
! CAUTION

New cotterless cranks may become loose with initial use. Tighten the flange nuts (see illustration below) after several hours or riding, and repeat it two or three times after further use. Cranks should then remain tight.

Binder (Boltless) Crank Replacement/Removal

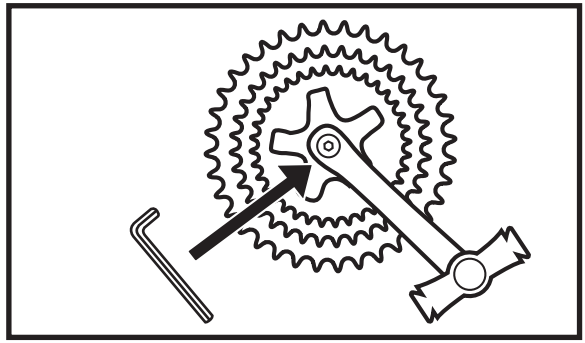
Generally lubrication and maintenance repairs of this boltless three piece crank set should be done by your local bike shop. However, the crank arms require regular checking and possible replacement.

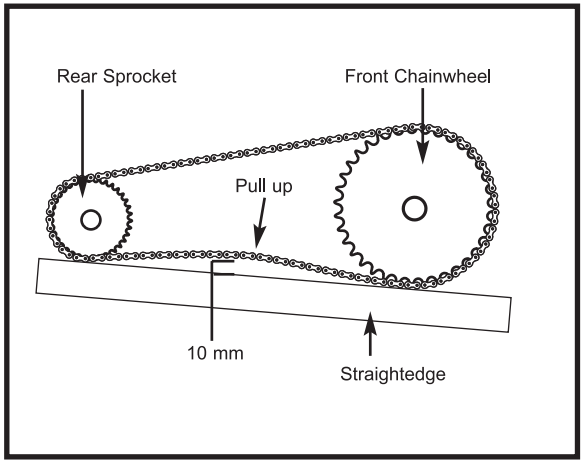
1. Use a 6 mm Allen wrench to loosen or tighten the cap screw in the binder end (2) and the end screw (1). The binder end cap screw (2) needs to be very tight. If a torque wrench is available tighten to 215 in/lbs.
2. Tap the crank lightly with a mallet to remove or replace the crank. Note on the right side the crank arm is riveted to the chainwheel and both will be removed or replaced together. What is shown is the left side.
3. Repeat step one.



CAUTION

New binder (boltless) cranks may become loose with initial use. Tighten the flange nuts (see illustration below) after several hours of riding and repeat after use if necessary.





CHAIN

Inspection

The chain must be kept clean, rust free and frequently lubricated in order to extend its life as long as possible. It will require replacement if it stretches, breaks, or causes inefficient gear shifting. Make sure that there are no stiff links, they must all move freely.

Lubrication

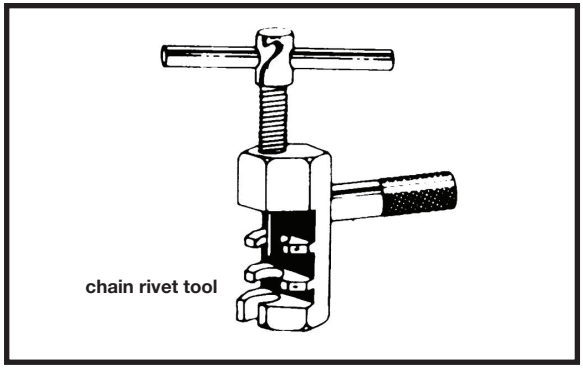
The chain should be lubricated with light oil at least every month, or after use in wet, muddy, or dusty conditions. Take care to wipe off excess oil, and not to get oil on the tires or rim braking surfaces.

Adjustment and Replacement

On derailleur geared bicycles the rear derailleur automatically tensions the chain. To adjust the chain on single speed freewheel, coaster hub braked or 3-speed hub geared bicycles:

1. Loosen the rear axle nuts (and coaster brake arm clip if fitted) and move the wheel forward to loosen, or backward to tighten in the frame.
2. When correctly adjusted, the chain should have approximately 10 mm of vertical movement when checked in the center between the chainwheel and rear sprocket. Center the wheel in the frame and retighten the axle nuts after any adjustment.

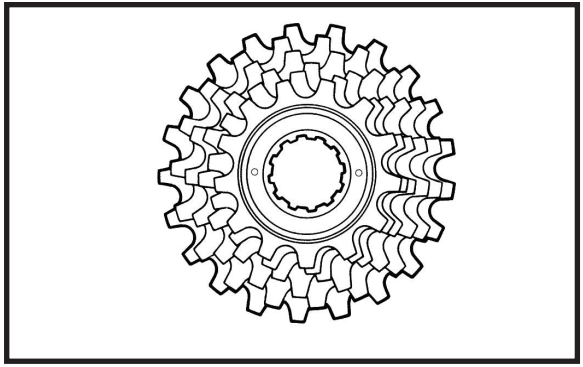
Chains require a special tool to fit and remove chain links, or to change the length. To remove, fit the rivet tool so that the punch pin is centered over any one of the chain rivets. Push the rivet almost all the way out, then back out the punch and remove the tool. Holding the chain on both sides of the punched rivet, bend it slightly to release link from the rivet. To install, feed chain around chainwheel, rear sprocket (and through front and rear derailleurs on multi-speed bikes) with protruding rivet facing away from the bicycle. Bring the two ends together within the special tool and punch the rivet into place. Be sure not to push rivet too far through side plate.

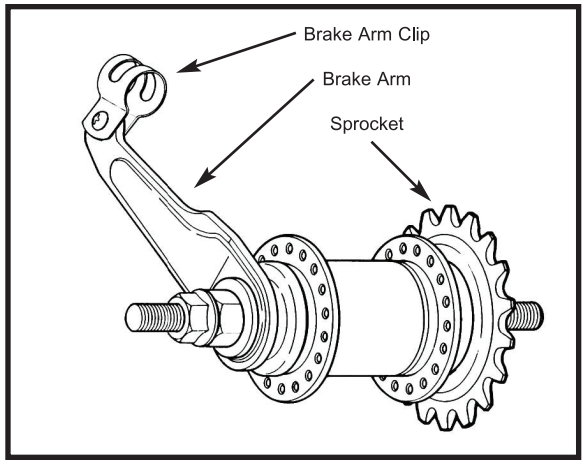

chain rivet tool

FREEWHEEL

Inspection

Like the chain, the freewheel must be kept clean and well lubricated. If the chain has become worn and needs replacing, then it is likely that the freewheel will also be replaced. Take the chain off the freewheel and rotate it with your hand. If you hear a grinding noise or the freewheel stops suddenly after spinning it, it may need adjustment or replacement. Such action is beyond the scope of this manual and you should consult a specialist.





Lubrication
Remove any accumulated dirt from the freewheel with a brush and a degreaser. Disassembly of the freewheel is a complicated procedure requiring special tools, and should be left to a specialist. Apply oil to the freewheel whenever you lubricate the chain, taking care to wipe off any excess.

COASTER HUB

Many BMX style and other children's bicycles are fitted with a coaster hub brake in the rear wheel. This type of brake offers the advantages of reliability and easy operation. The brake is operated by applying back pedal pressure and allows the rider to "coast" without pedaling, if desired. There are several models of coaster hubs available, and the internal mechanisms are very complex. They require infrequent attention as far as lubrication, adjustment or replacement of internal parts; if needed, this should be left to a specialist. Keep the coaster hub sprocket clean and oil it along with the chain.

! CAUTION

Make sure the brake arm is correctly attached to the chainstay with the brake arm clip. The brake will not operate otherwise.

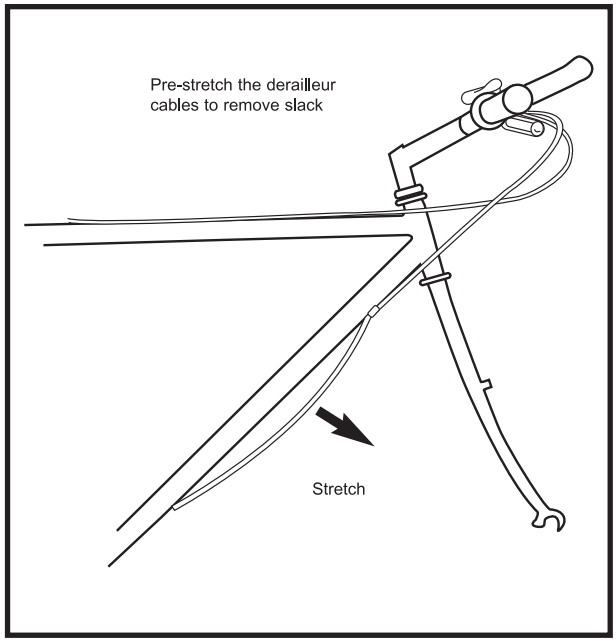
DERAILLEUR SYSTEMS

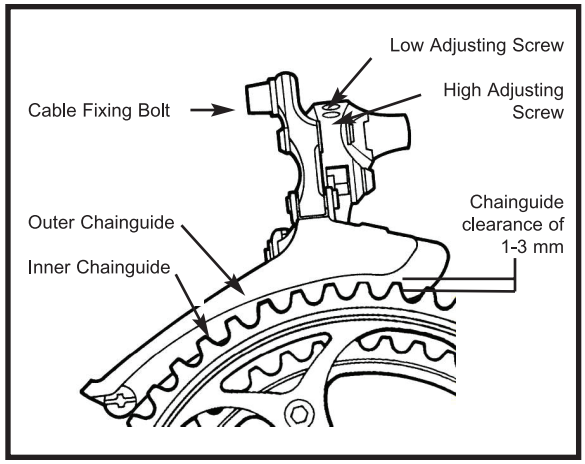
The derailleur system includes the front and rear derailleurs, the shift levers, and the derailleur control cables, all of which must function correctly for smooth gear shifting to occur. There are several different types of derailleur systems but all operate using similar principles. Your new bicycle may be fitted with a standard “friction” type system where you will need to feel each gear shift into position. It may be fitted with an “index” system (e.g. SIS) which links each different gear position to a positive click mechanism in the shifter, and makes shifting very simple and precise.

Inspection

The operation of the derailleur system should be checked at least every month. Check the operation of the rear derailleur first, then the front. The rear derailleur should shift the chain cleanly from one cog to the next without hesitation. On index system equipped bicycles, each notched position in the shifter must equate to a new gear position. After shifting, the rear derailleur should not rub on the chain. The derailleur should never cause the chain to fall off the inner or outer freewheel cogs.

The front derailleur should also shift the chain cleanly and without hesitation between each chainring. When the chain has been positioned onto a new chainring, it should not rub on the front derailleur. The chain should not fall off a chainring at any time. Derailleur control cables are a critical component that must be well maintained for accurate shifting performance. Check them for any sign of rust, fraying, kinks, broken strands, and any damage to the cable housing. If you find any problems, the cables may need replacing before you ride.





NOTE: It may take several adjustments to achieve the desired positioning.

Adjustment - Front Derailleur

1. Shift the **rear** shifter to the smallest number indicated, then shift the **front** shifter to the smallest number indicated. Disconnect the front derailleur cable from the cable anchor bolt and place the chain on the smallest chainwheel.
2. Make sure the front derailleur cage is parallel with the outer chainwheel on the crankset. There must be a 3 - 5 mm gap between the bottom of the derailleur cage and the top of the outer chainwheel teeth to ensure the derailleur will clear the chainwheel when shifting.
3. Adjust the low limit screw so the chain is centered in the middle of derailleur cage. Pull all slack out of the cable by pulling it taut, then reconnect the cable and tighten the cable anchor bolt securely.
4. Shift the front shifter into the largest gear and pedal the bike so the chain jumps to the largest chainwheel. If the chain does not shift onto the largest chainwheel, you will need to turn the High limit screw counterclockwise until the chain moves to the largest chainwheel. If the chain falls into the pedals, the High limit screw has been turned too far. You will need to readjust the High screw clockwise in 1/4 turn increments. until the chain no longer falls off.
5. Shift through each gear ensuring all are achieved quietly and without hesitation.
6. Some shifters may have an adjusting barrel. Use the adjusting barrel to fine tune the adjustment of the chain location. Turn the adjusting barrel clockwise will move the derailleur inboard - towards the frame, while turning it counterclockwise will direct the chain outboard - away from the frame.

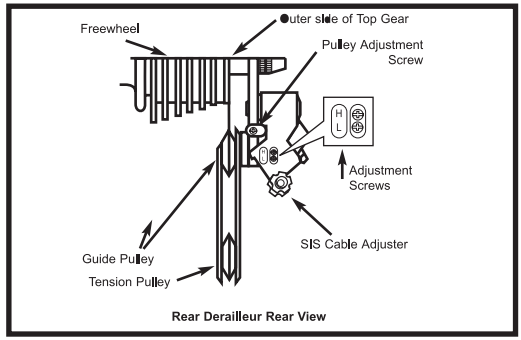
Lubrication

All the pivoting points of the front and rear derailleurs should be lubricated with light oil at least every month. Be sure to wipe off any excess oil to prevent attraction of dirt into the mechanisms. The shifting cables should be cleaned and recoated with a thin layer of grease every six months, or whenever new cables are being installed.

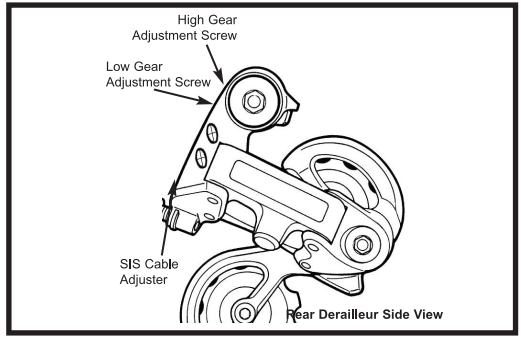
Adjustment - Rear Derailleur

The Low limit screw determines how far the rear derailleur will travel toward the wheel of the bicycle, while the High limit screw determines how far the cage will travel toward the frame.

1. Shift the rear shifter to the largest number indicated, disconnect the rear derailleur cable from the cable anchor bolt and place the chain on the smallest sprocket.
2. Adjust the High limit screw so the chain and the smallest sprocket are lined up vertically. Remove any slack in the cable by pulling it taut, then reconnect the cable and tighten the cable anchor bolt securely.
3. Some derailleurs have an adjusting barrel (see drawings). Use the adjusting barrel to fine tune the adjustment of the chain location. Turning the adjusting barrel clockwise will move the derailleur inboard - towards the wheel - while turning it counterclockwise will direct the chain outboard - away from the wheel.
4. Shift the chain onto the largest sprocket; adjust the low limit screw so the chain and the largest cog are lined up vertically. If you are unable to get the chain to the largest cog, turning the Low limit screw counterclockwise will enable the chain to move towards the wheel.
5. Shift through the gears ensuring each gear is achieved quietly and without hesitation.



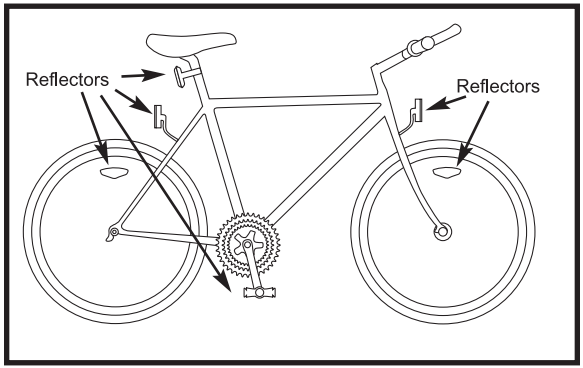
Rear Derailleur Rear View

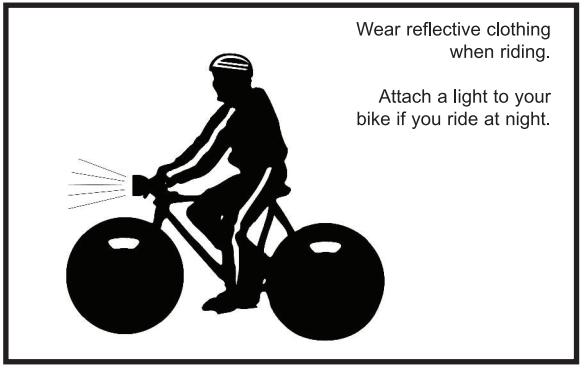


Rear Derailleur Side View

NOTE: It may take several adjustments to achieve the desired positioning. Please refer to the troubleshooting section for assistance.

NOTE: Some bicycles may be equipped with a rear derailleur mechanism that works in REVERSE to the directions above.





REFLECTORS

Your bicycle is supplied with one front (white), one rear (red), two wheel (white), and two pedal (orange) reflectors. These are an important safety and legal requirement, and should remain securely fitted and in good, clean conditions at all times. Periodically, inspect all reflectors, brackets and mounting hardware for signs of wear or damage. Replace immediately if damage is found.

PROBLEM	POSSIBLE CAUSE	REMEDY
Gear Shifts not working properly.	- Derailleur cables sticking or stretched or damaged. - Front or rear derailleur not adjusted properly. - Indexed shifting not adjusted properly.	- Lubricate, tighten, or replace cables. - Adjust derailleurs. - Adjust indexing.
Slipping Chain.	- Excessively worn/chipped chainring or freewheel sprocket teeth. - Chain worn/stretched. - Stiff link in chain. - Non-compatible chain or chainring or freewheel.	- Replace chainring, sprockets and chain. - Replace chain. - Lubricate or replace link. - Seek advice at a bicycle shop.
Chain jumping off freewheel sprocket or chainring.	- Chainring out of true. - Chainring loose. - Chainring teeth bent or broken. - Rear or front derailleur side-to-side travel out of adjustment.	- Retrue if possible, or replace. - Tighten mounting bolts. - Repair or replace chainring/set. - Adjust derailleur travel.
Constant clicking noises when pedaling.	- Stiff chain link. - Loose pedal axle or bearing. - Loose bottom bracket axle or bearings. - Bent bottom bracket bearings too tight. - Loose crankset.	- Lubricate chain or adjust chain link. - Adjust bearings or axle nut. - Adjust bottom bracket. - Replace bottom bracket axle or pedals. - Tighten crank bolts.
Grinding noise when pedaling.	- Pedal bearings too tight. - Bottom bracket bearings too tight. - Chain fouling derailleurs. - Derailleur jockey wheels dirty or binding.	- Adjust bearings. - Adjust bearings. - Adjust chain line. - Clean and lubricate jockey wheels.

PROBLEM	POSSIBLE CAUSE	REMEDY
Freewheel does not rotate.	- Freewheel internal pawl pins are jammed.	- Lubricate, if problem persists, replace freewheel.
Brakes not working effectively.	- Brake blocks worn down. - Brake blocks/rim greasy,wet or dirty. - Brake cables are binding, stretched or damaged. - Brake levers are binding. - Brakes out of adjustment.	- Replace brake blocks. - Clean blocks and rim. - Clean, adjust, or replace cables. - Adjust brake levers. - Center brakes.
When applying the brakes they squeal/squeak.	- Brake blocks worn down. - Brake block toe-in incorrect. - Brake blocks/rim dirty or wet. - Brake arms loose.	- Replace blocks. - Correct block toe-in. - Clean blocks and rim. - Tighten mounting bolts.
Knocking or shuddering when applying brakes.	- Bulge in the rim or rim out of true. - Brake mounting bolts loose. - Brakes out of adjustment. - Fork loose in head tube.	- True wheel or take to a bike shop. - Tighten bolts. - Center brakes and/or adjust brake block toe-in. - Tighten headset.
Wobbling wheel.	- Axle broken. - Wheel out of true. - Hub comes loose. - Headset binding. - Hub bearings collapsed. - Quick release mechanism loose.	- Replace axle. - True wheel. - Adjust hub bearings. - Adjust headset. - Replace bearings. - Adjust QR mechanism.

PROBLEM	POSSIBLE CAUSE	REMEDY
Steering not accurate.	- Wheels not aligned in frame. - Headset loose or binding. - Front forks or frame bent. - Stem wedge bolt not tight.	- Align wheels correctly. - Adjust/tighten handset. - Take bike to a bike shop for possible frame realignment. - Tighten stem bolt until stem and fork are unified. Use the “between knee” test and if loose, tighten stem bolt until it passes the test.
Frequent punctures.	- Inner tube old or faulty. - Tire tread/casing worn. - Tire unsuited to rim. - Tire not checked after previous puncture. - Tire pressure too low. - Spoke protruding into rim.	- Replace inner tube. - Replace tire. - Replace with correct tire. - Remove sharp object embedded in tire. - Correct tire pressure. - File down spokes.

LIMITED WARRANTY

Production Limitations

Problems of rider error aside, advanced or extreme riding also beats the heck out of your equipment and the bicycles covered by this manual are not intended for such advanced or extreme uses. Although your new Dynacraft bike is built tough, there's no way we can guarantee your new bike will survive your umpteenth drop because there is no industry "jumping" standard, the many circumstances of takeoff, landing, speed, rider technique, and these extreme uses neither could be nor were they taken into account during the manufacturing of these bicycles.

Your Limitations

Buying a Dynacraft bike does not make you any better. Do not confuse the built-in capabilities of equipment with your own capabilities, which must be learned. If you're going to ignore our recommendations and go extreme anyway, be smart about it. Always wear a full face helmet, body armor, full finger gloves and protective clothing. Choose a bike that's right for you, your riding terrain, probably not ours and check it often for signs of fatigue or other trouble. And most importantly, know your limitations and stay within them. Practice. Stay in control; carefully and gradually expand your limits - but ride within them.

The Warranty

Keeping your bike and all its components in good working order is critical, and it's up to you to maintain and inspect it. Even so, your bike isn't going to last forever. Nothing does, particularly bikes and parts that are built to minimize weight and then are subjected to abuse. Dynacraft bike frames carry a warranty, but that's to cover issues with workmanship and/or materials. The warranty doesn't mean that they're going to last forever. They're not. However, if properly maintained

and safely used, we will replace a broken frame for the original purchaser. This warranty certainly doesn't mean that the bicycle can in any way protect you from injury.

Subject to the following limitations, all bicycles manufactured for Dynacraft are warranted to the original purchaser to be free of defects in materials and workmanship for a period from the date of purchase of:

Lifetime for the Bicycle Frame and Fork, Two Years On All Other Component Parts.
No other express or implied warranty is given.

Dynacraft will replace without charge the bicycle frame, fork or those component parts that are determined by Dynacraft to be defective in materials or manufacture under normal use and service during the applicable warranty period. The original purchaser will be responsible for any and all labor charges connected with the repair or replacement of the frame, fork, and/or parts. Component parts subject to wear in use, tires, tubes, seats, grips, and brake shoes are not covered under this warranty.

BEWARE THERE ARE LIMITATIONS ON WHAT WE WARRANTY:
This limited warranty does not apply to normal wear and tear, nor to claimed defects, malfunctions, or failures that result from abuse, neglect, improper assembly, improper maintenance, alteration, collision, crash, misuse, or any damaged caused while in an organized competition or commercial activity. The bicycle frame, fork, and component parts have been manufactured for use by average riders, and the bicycles are not intended for trick riding, ramp riding, jumping, aggressive riding and any similar extreme activities; while such uses may damage the bicycle frame, fork and/or component parts, such use will void this warranty. This does not mean we assume any responsibility for any injuries you might sustain while using your bike. We do not, and only you do. Read on.

Dynacraft's bicycles are intended for the average rider to use on streets, roads and bicycle approved off road trails, and 20 inch BMX and Free Style bicycles are for non competition youth play including limited trick riding and stunts that are safe and within the rider's experience and limits. Even in these circumstances bicycle riding can be inherently dangerous such that bodily injury or death can occur, especially if the rider does not make the safety and maintenance checks recommended in this manual, if the rider does not wear a helmet, if the rider does not follow the rules of the road, if the rider goes into traffic, rides double, or engages in aggressive stunts or extreme terrain riding. All riders will assume their own risk of injury while biking, and Dynacraft will not be responsible unless the accident and injury arises out of Dynacraft's sole negligence and such negligence must be affirmatively proven.

THE PURCHASE OF THIS BICYCLE WILL CONFIRM THE BUYER'S AGREEMENT THAT DYNACRAFT'S LIABILITY UNDER THIS WARRANTY SHALL BE NO GREATER THAT THE AMOUNT OF THE ORIGINAL PURCHASE PRICE AND IN NO EVENT SHALL DYNACRAFT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Dynacraft BSC, Inc.
89 South Kelly Road
American Canyon, CA 94503
Customer Service 1-800-551-0032
Monday - Friday 7:00 am to 4:00 pm Pacific Time

Cut along dotted line before mailing

PLACE
FIRST
CLASS
STAMP
HERE

Dynacraft BSC, Inc.
89 South Kelly Road
American Canyon, CA 94503

Cut along dotted line before mailing

Thank you for purchasing your bicycle. Please take a moment to fill out this registration card, and mail it back to us. We value your business and appreciate your feedback.

* **Model Number/Description:** _____

* **Serial Number:** _____

* **Name:** _____

* **Address:** _____

City/State: _____ **Zip:** _____

Date of Purchase: _____ **User's Date of Birth:** _____

Date of Birth of Person's Whose Name Appears Above: _____

Place of Purchase: _____

Check the 2 most important reasons you selected this brand of bicycle:

- ☐ Friend or relative owns store
- ☐ Newspaper ad
- ☐ Price
- ☐ Appearance/Style
- ☐ Special features
- ☐ Character
- ☐ Color
- ☐ Other (please specify) _____

Who selected this bicycle?

- ☐ Father of user
- ☐ Mother of user
- ☐ Child
- ☐ Grandparents
- ☐ Relative
- ☐ Other

Who is using this bicycle?

- ☐ Male
- ☐ Female

*** Info required to properly register bicycle.**

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